PACIFIC FISHERMAN

1950 YEARBOOK NUMBER

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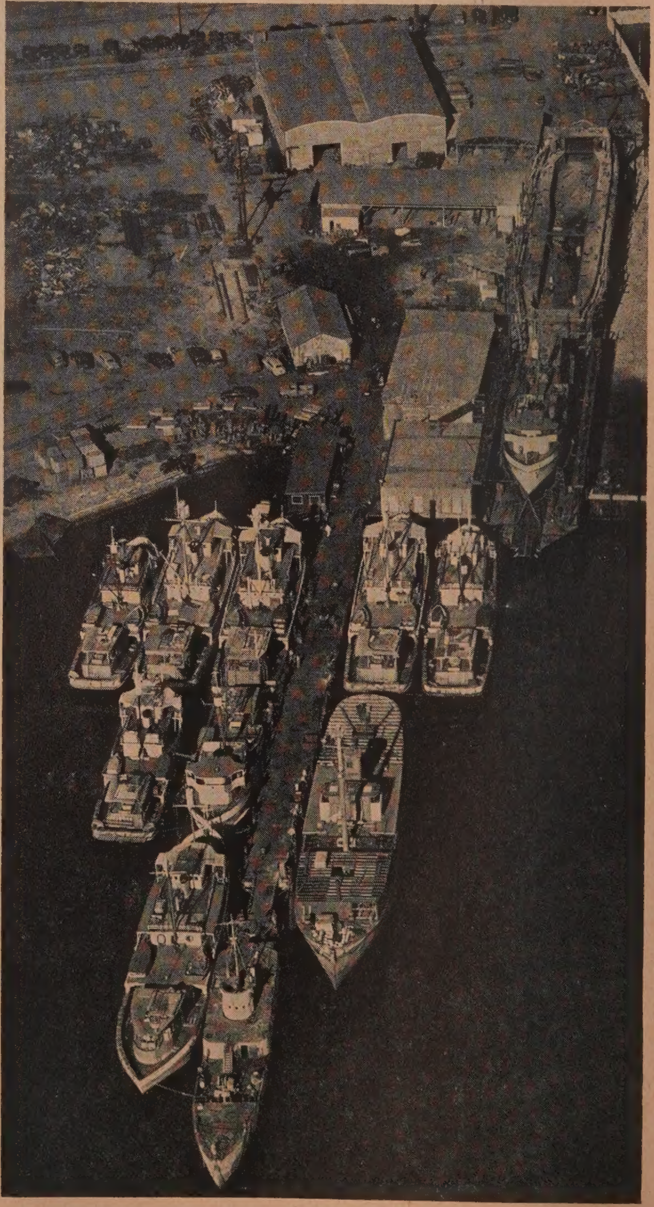

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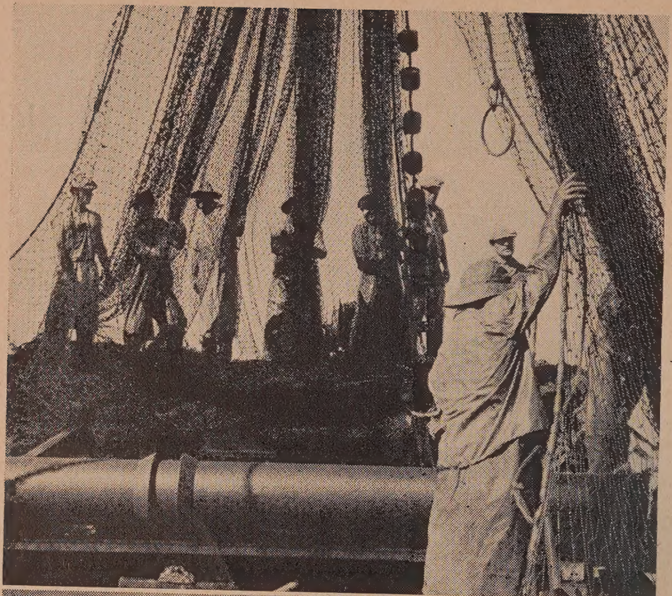

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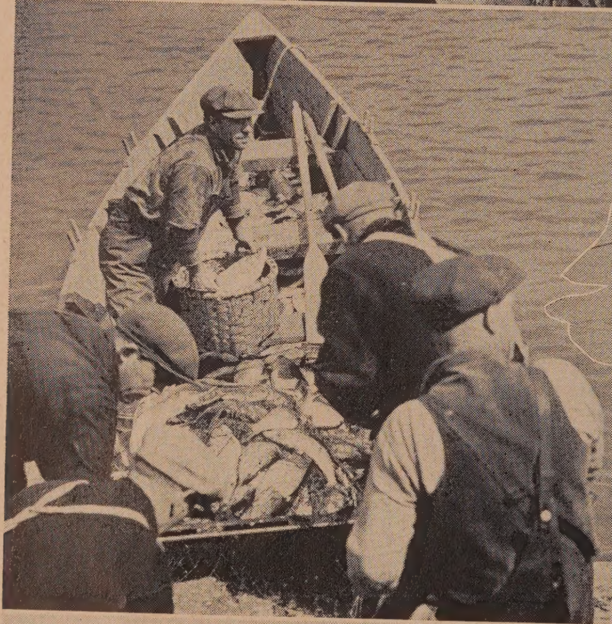

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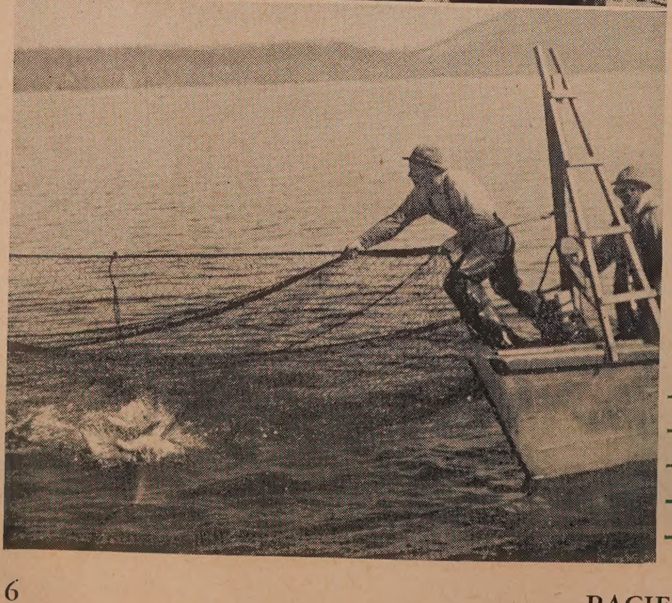

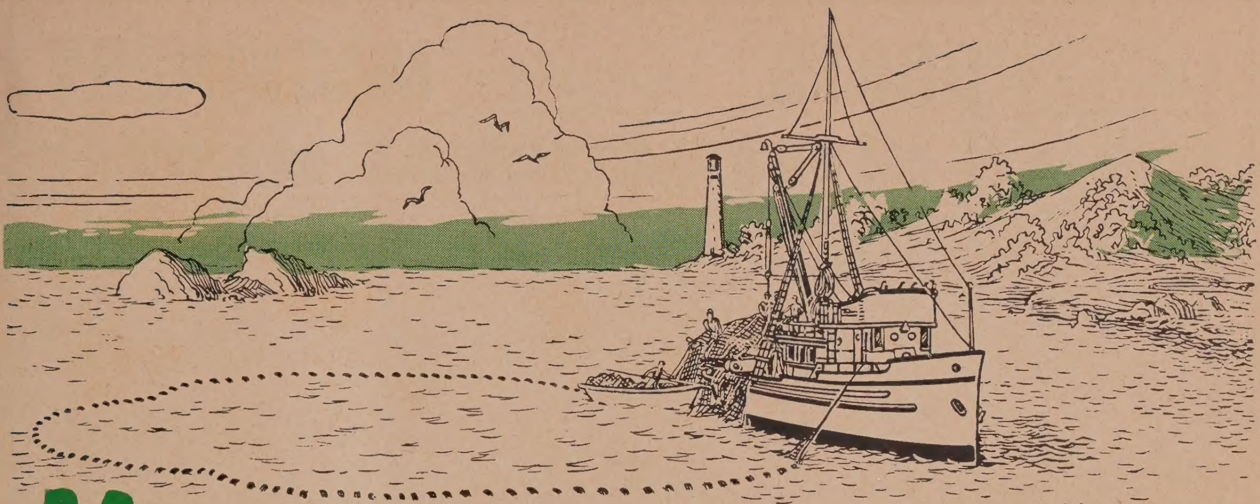

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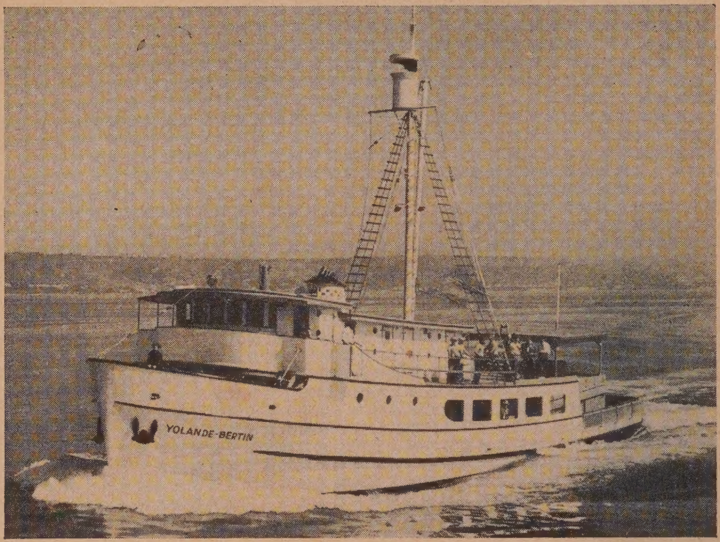

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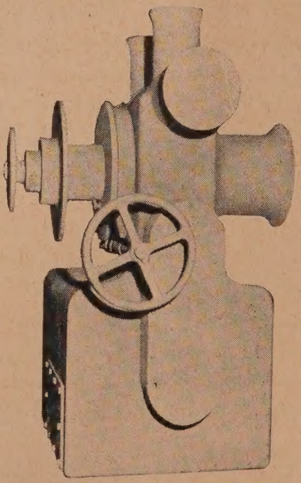

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Above, left: "David K. Phillips", "Margaret", "Alden S. Swan" and "William S. Brusstar", 125' to 130' over-all, all repowered from 1944 to 1947 with Cooper-Bessemer direct-reversing diesels ranging from 515 to 730 bhp.

Above, right: Exterior and interior view of diesel-electric plant, powered by a supercharged Cooper-Bessemer 865 hp JS-6 diesel driving a 600 kw Elliot generator. Radiators adjacent to power house cool engine jacket water and water for lube oil cooler.

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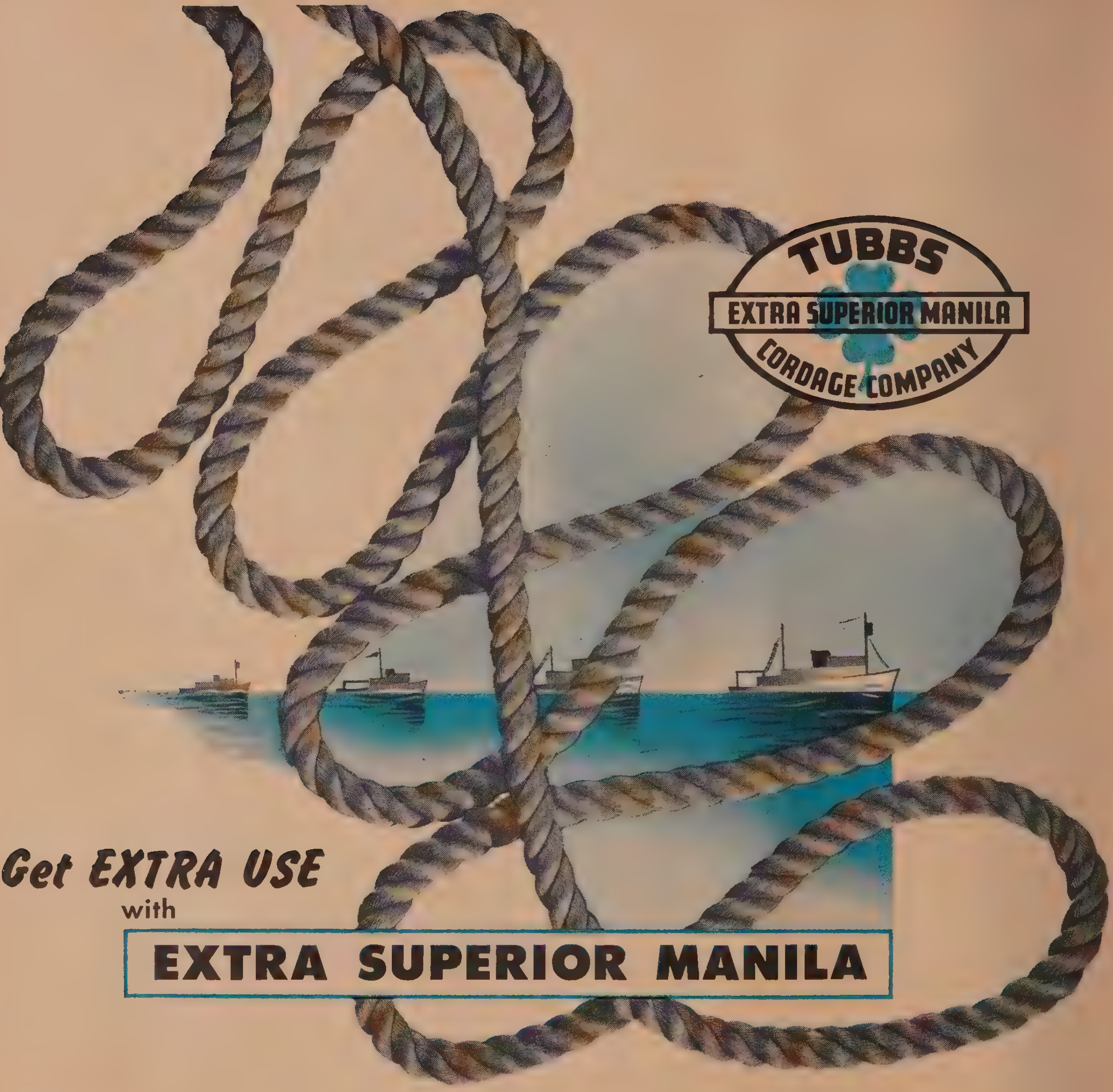

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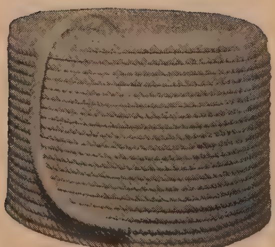

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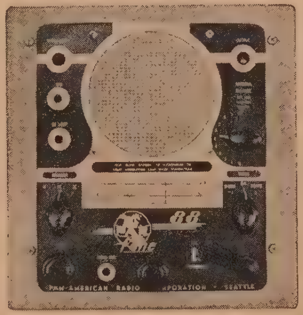

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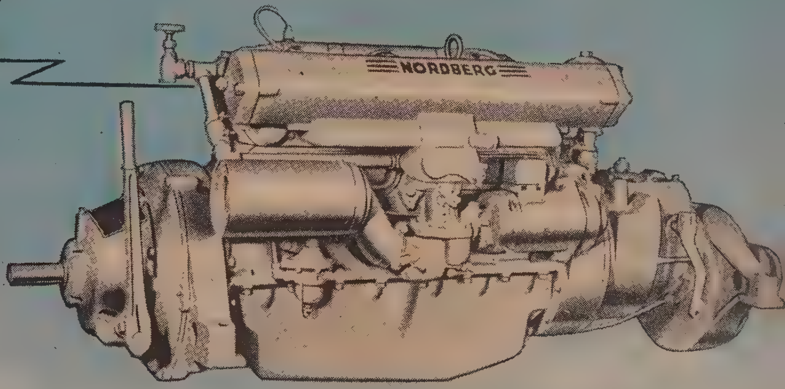

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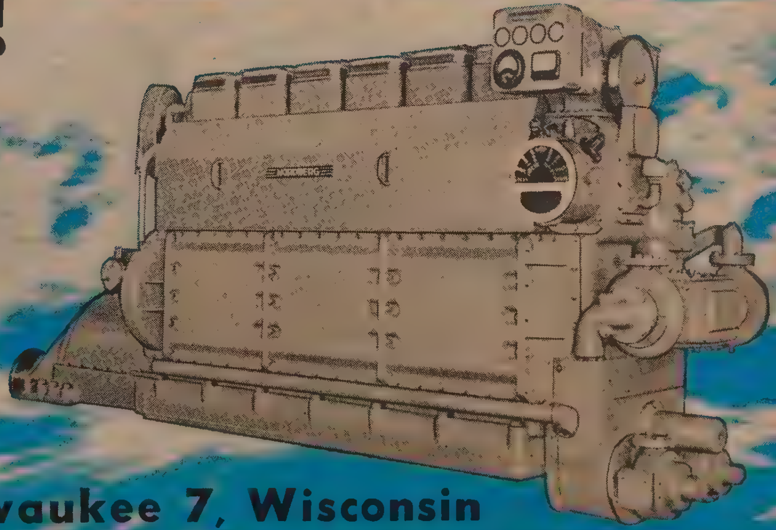

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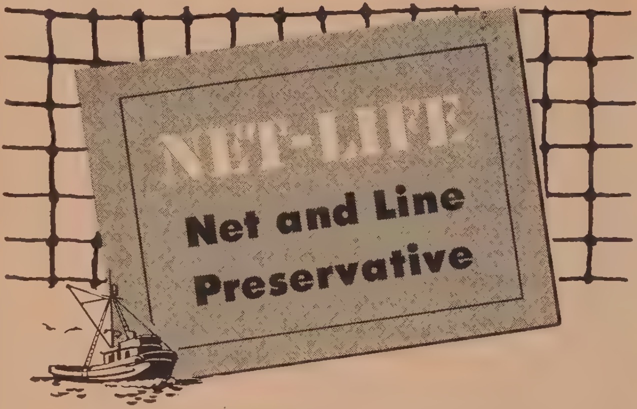

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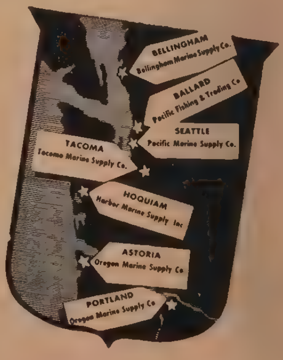
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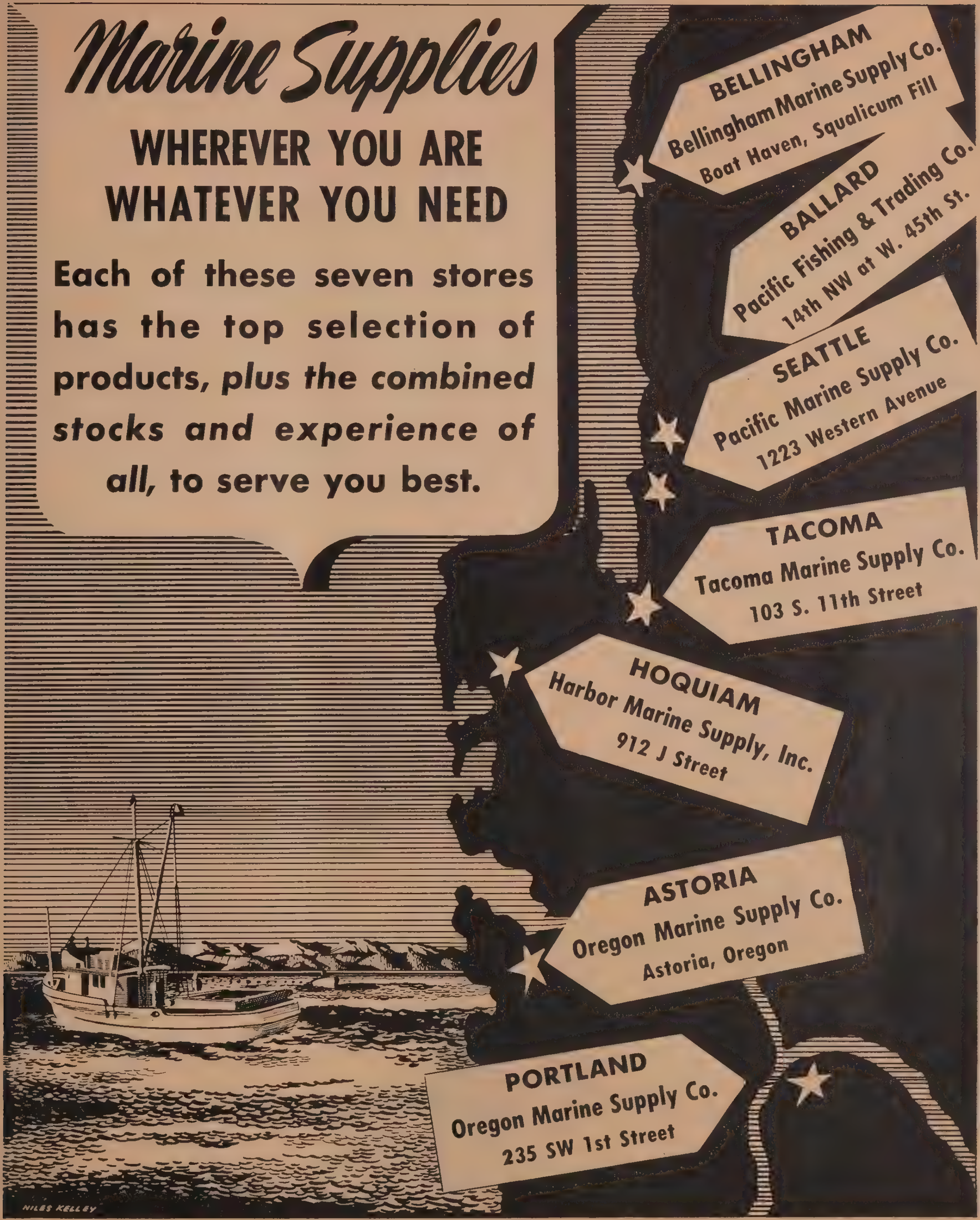
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And for Purse Seine, Trap or Trawl, Gold Medal *cotton* netting is successful fishermen's favorite.

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GOLD MEDAL SEINE TWINE—For hand-knitting, hanging and mending, get the same high-quality twine that Gold Medal Netting is knit from. Ask for and be sure you get Gold Medal.

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GOLD MEDAL NETTING means controlled production in our own plants, from the bale of cotton to the finished netting. This is your assurance of dependable quality.

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THE LINEN THREAD CO., INC., 116 New Montgomery St., San Francisco 5, Calif.

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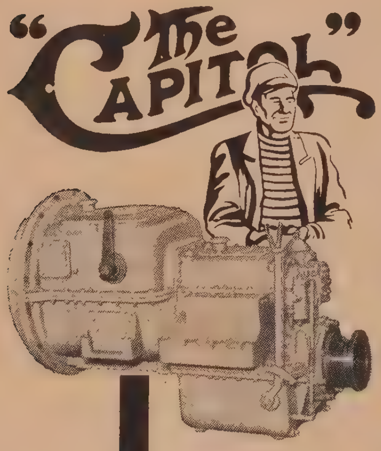
"The Capitol"



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DEPENDABLE Power transmission which only long experience in designing and manufacturing quality marine gears can produce. That's a Capitol Gear. The FG Reverse EC 8000 is designed for engines from 400 H.P. at 900 RPM to 500 H.P. at 1200 RPM full 100% reverse.

OTHER CAPITOL GEARS FOR ENGINES FROM 100 HP at 3600 RPM to 1000 HP at 1000 RPM. COMPLETE SPECIFICATIONS WILL BE SENT ON REQUEST.

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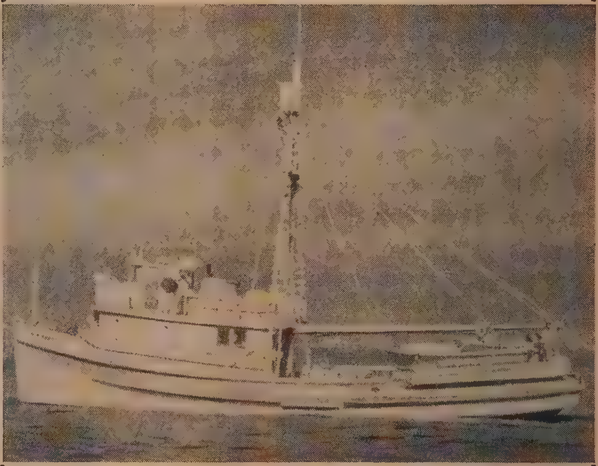

Whatever your needs are for a fishing boat, our engineers, designers, and master craftsmen are here to help you. Whether it be a 32-foot wood combination boat, or a 150-foot steel tuna clipper, our experienced staff will build you a boat that will make you money.

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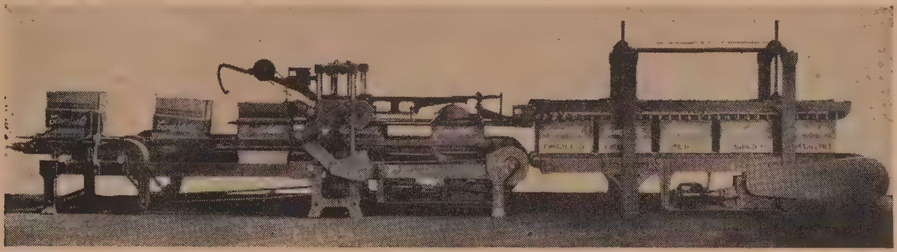

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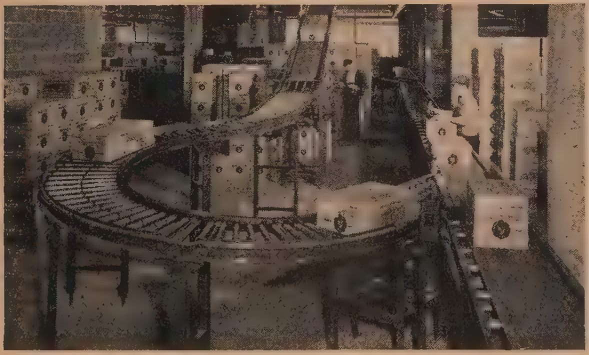

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systems for package-handling requirements in the fishing industry.

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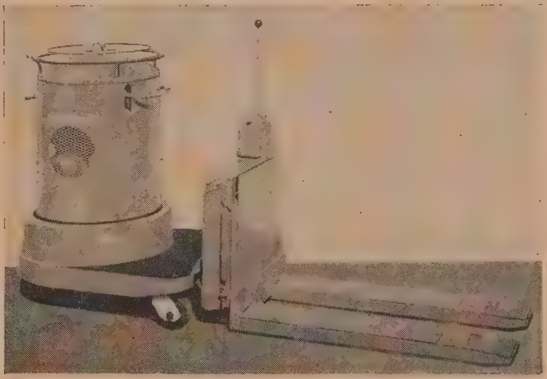
At our four Pacific Coast offices mentioned on this page, we offer direct and personalized service in the planning, layout, installing and servicing of this well accredited line of conveying equipment.



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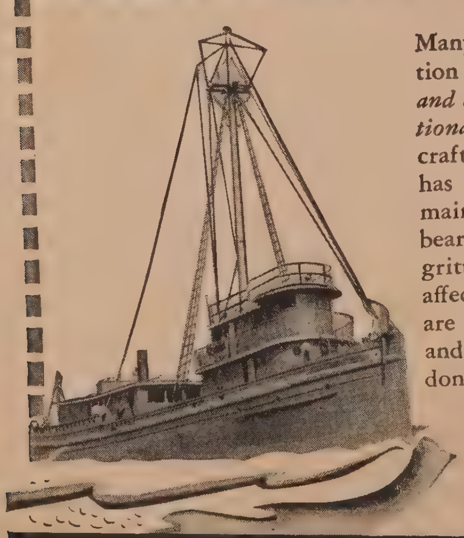

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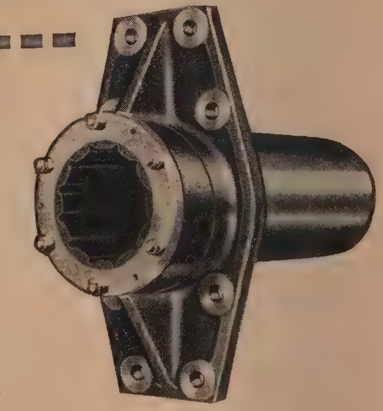

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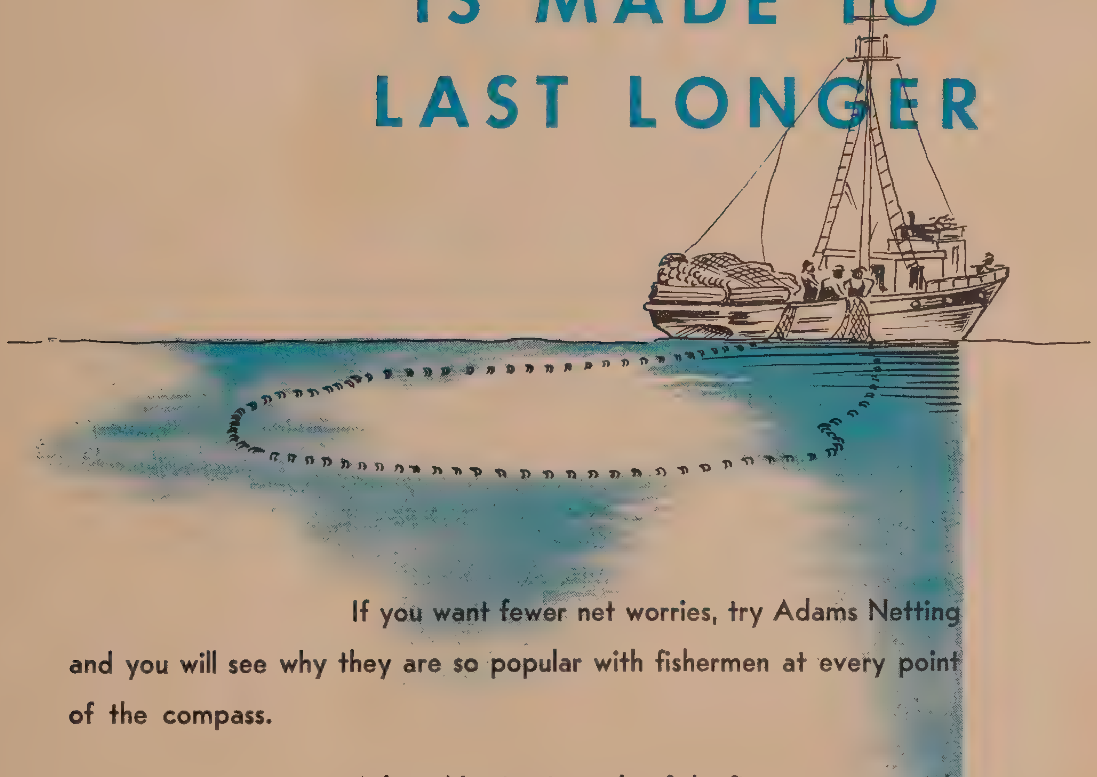

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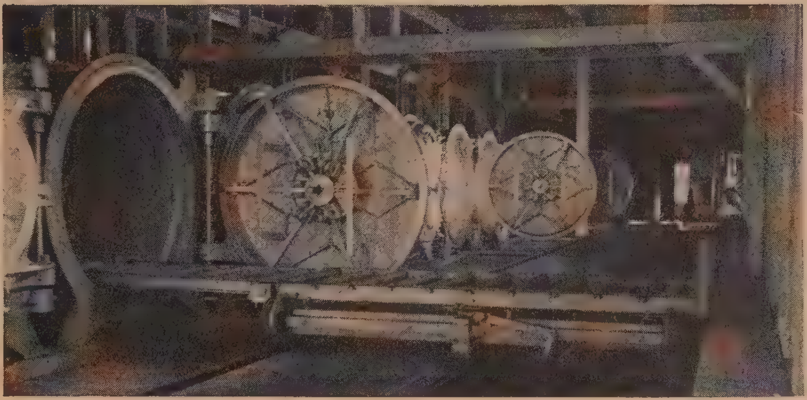

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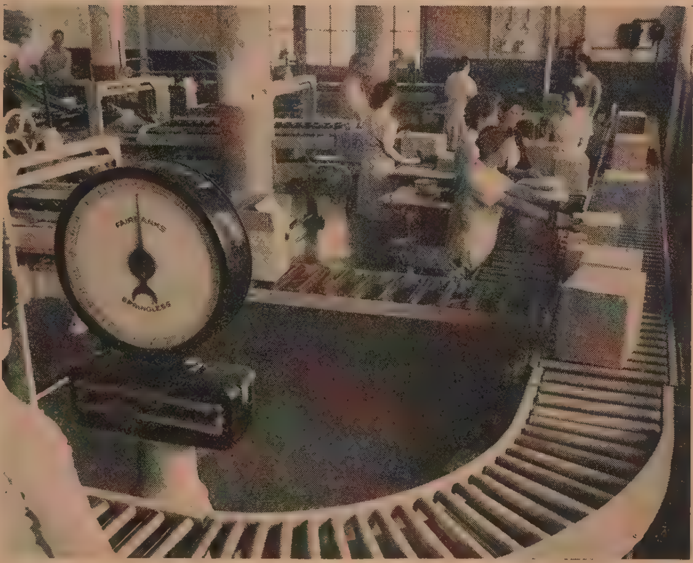

ILLUSTRATION ABOVE SHOWS MATHEWS CASE HANDLING CONVEYERS

MATHEWS Case Handling Systems offer the up-to-date salmon packer another chance to save time and effort.

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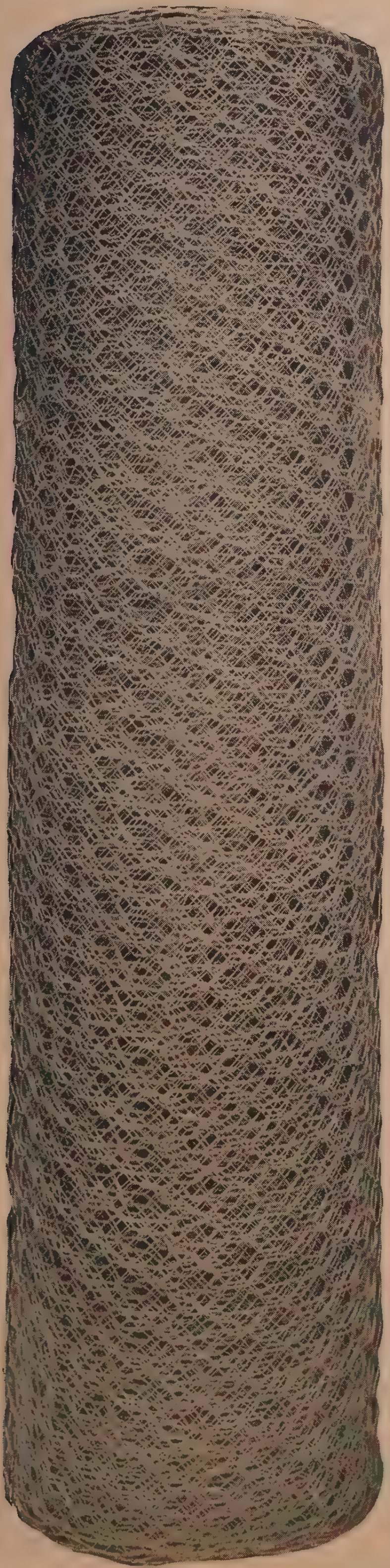

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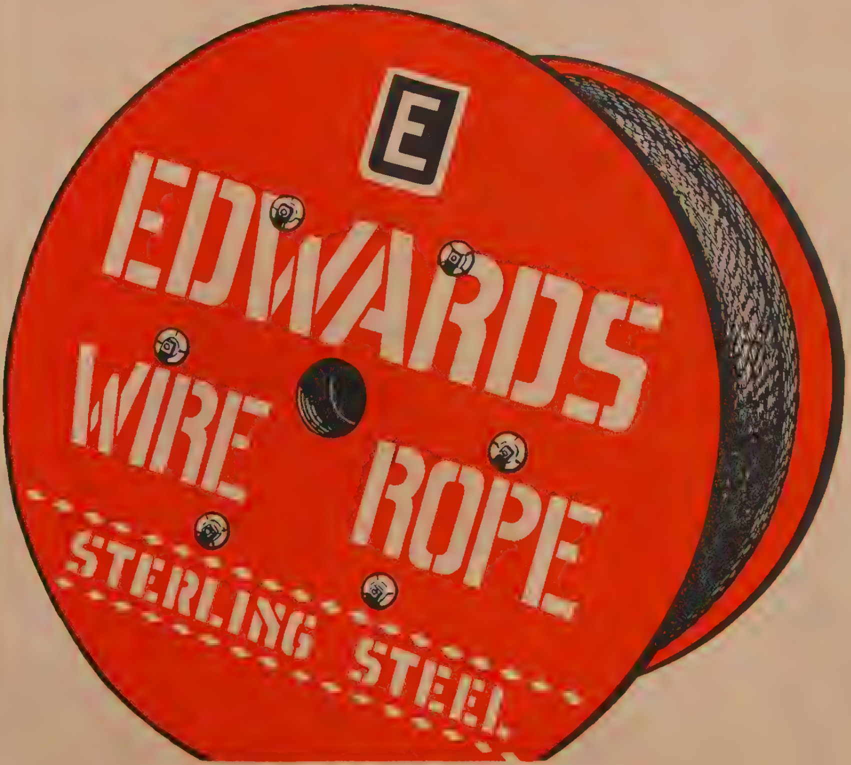

4 reasons why a Universal is your *best buy!*

1. ***First Cost.*** Universal prices are, in many cases, even lower than those of "converted" motors. Yet you get more costly 100% marine design and construction with a Universal.

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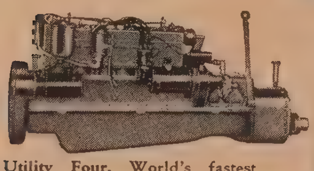
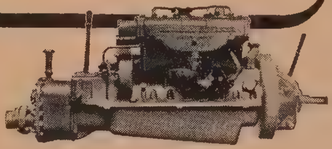
Sea Lion Six. The last word in the 260 cubic inch class. For 110 smooth, flowing horsepower that will give you years and years of low cost service. ↓





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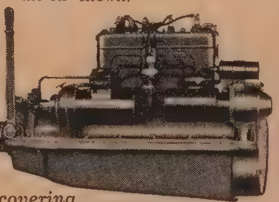

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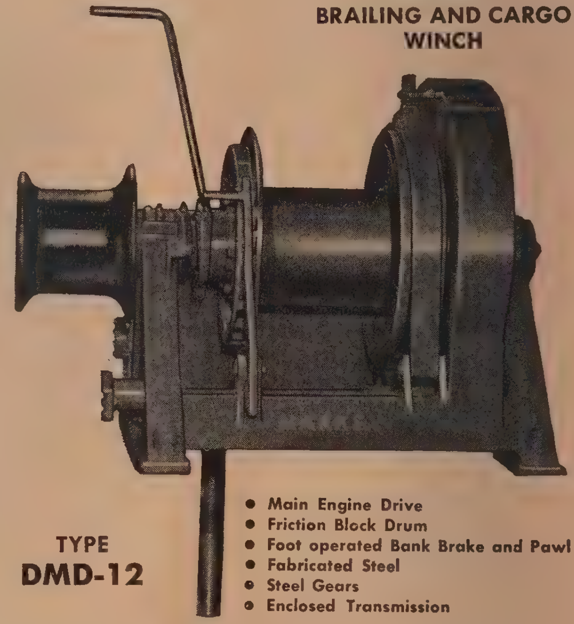

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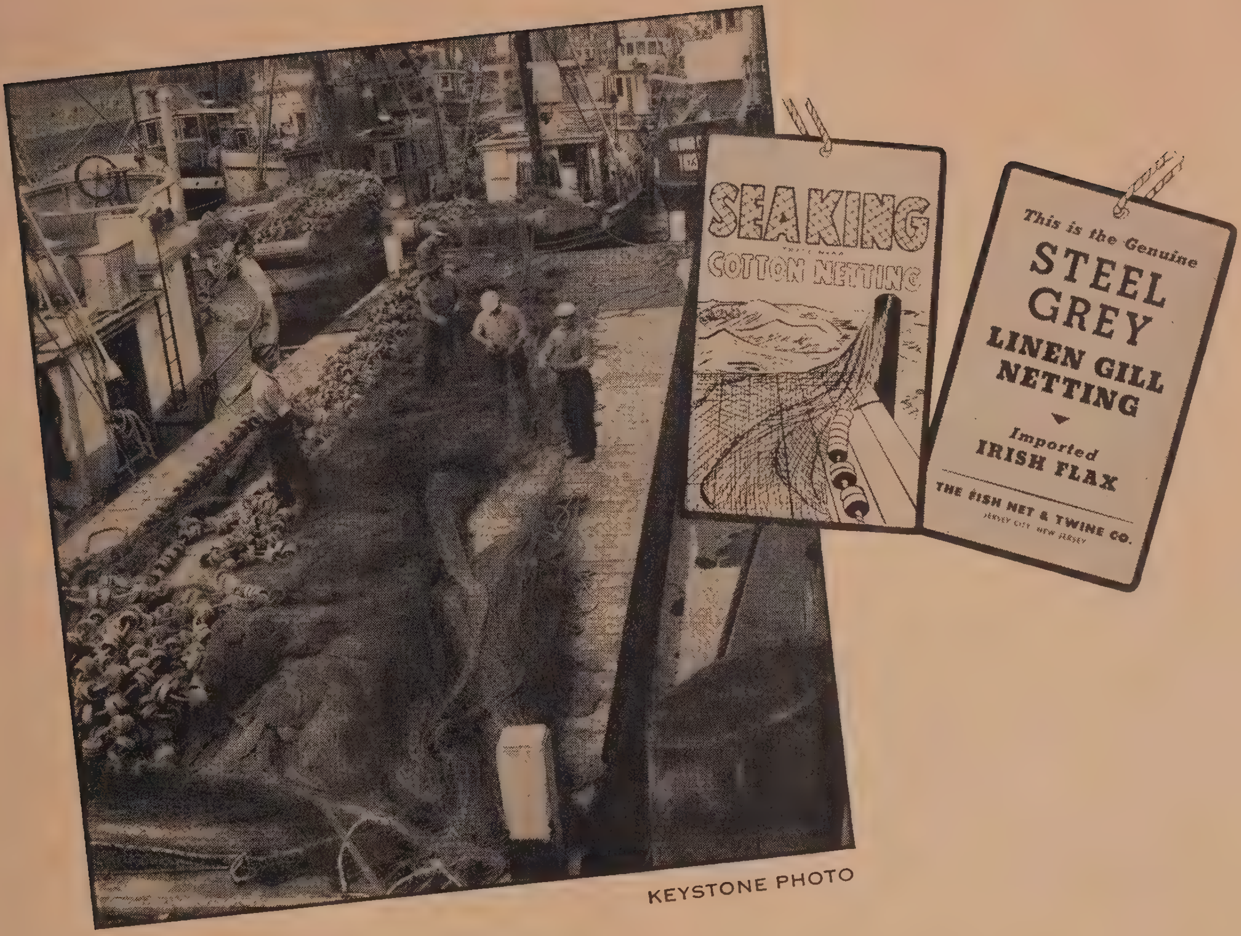
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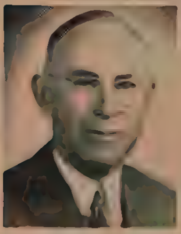

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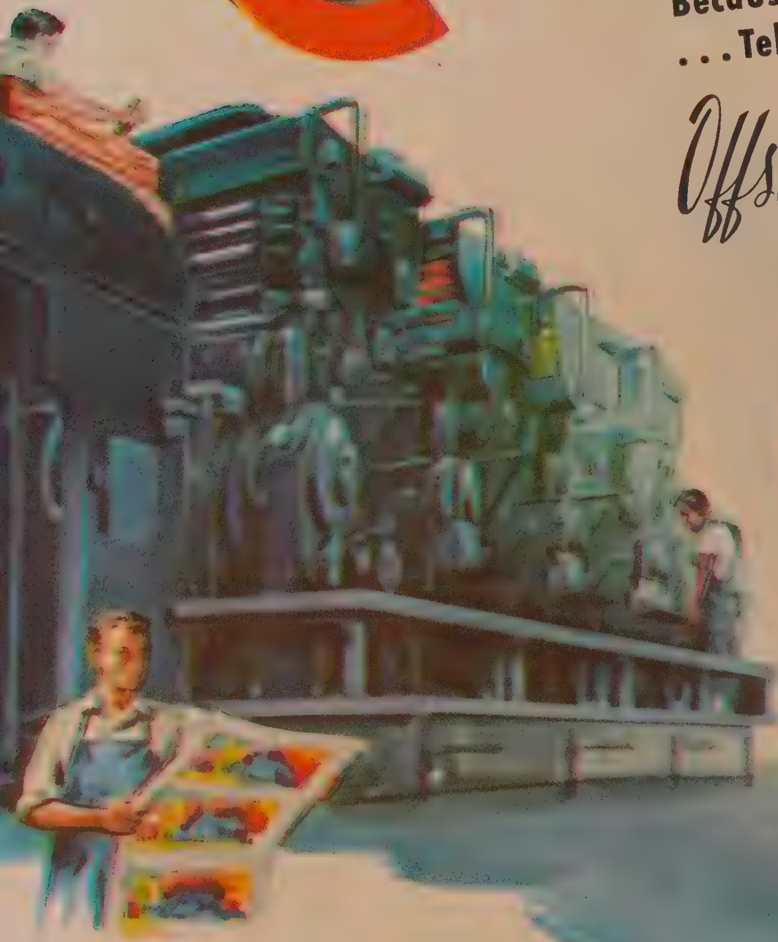

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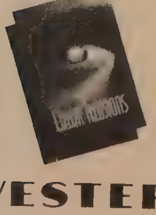

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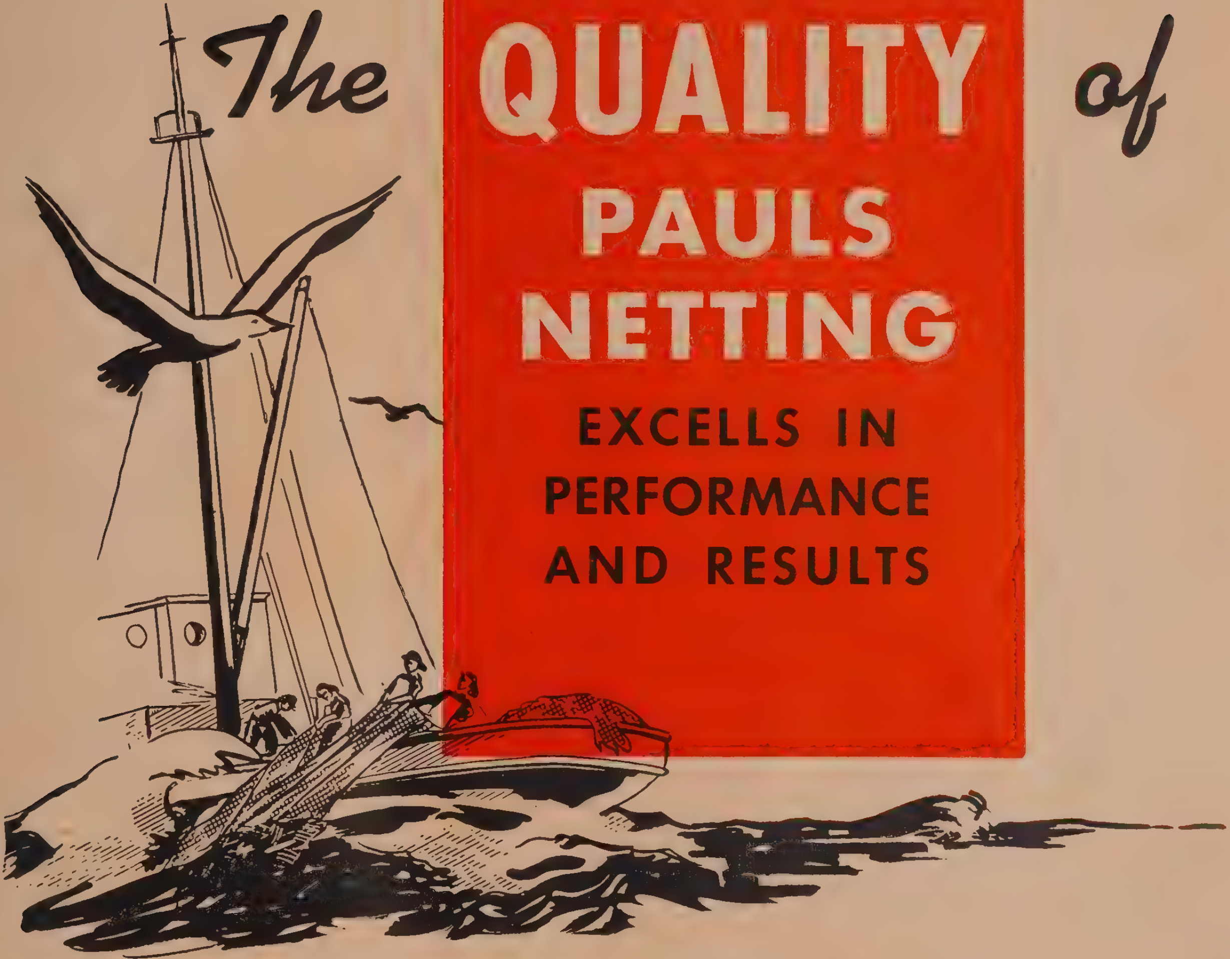
The QUALITY *of* PAULS NETTING

EXCELLS IN PERFORMANCE AND RESULTS



REGARDLESS of the type of boat and crew that mans your fishing fleet, the success in bringing up the fish depends upon the quality of netting you use. That is why Pauls Netting excells, because it is made by a firm with the knowledge, experience, and high quality workmanship that assures its customers satisfaction. Nothing but the strongest twine is used, woven into uniform, finely meshed, and securely tied nets that hold heavy loads, giving profit and production for you. Pauls Fish Net Company is also the creator of the Pauls Salmon Gill Netting, with the famous Locknot feature. This is a method of tying or knotting the mesh with a slip proof knot, so that in tough fishing, the mesh will retain its uniformity, making it fish efficiently and preventing drape sagging.

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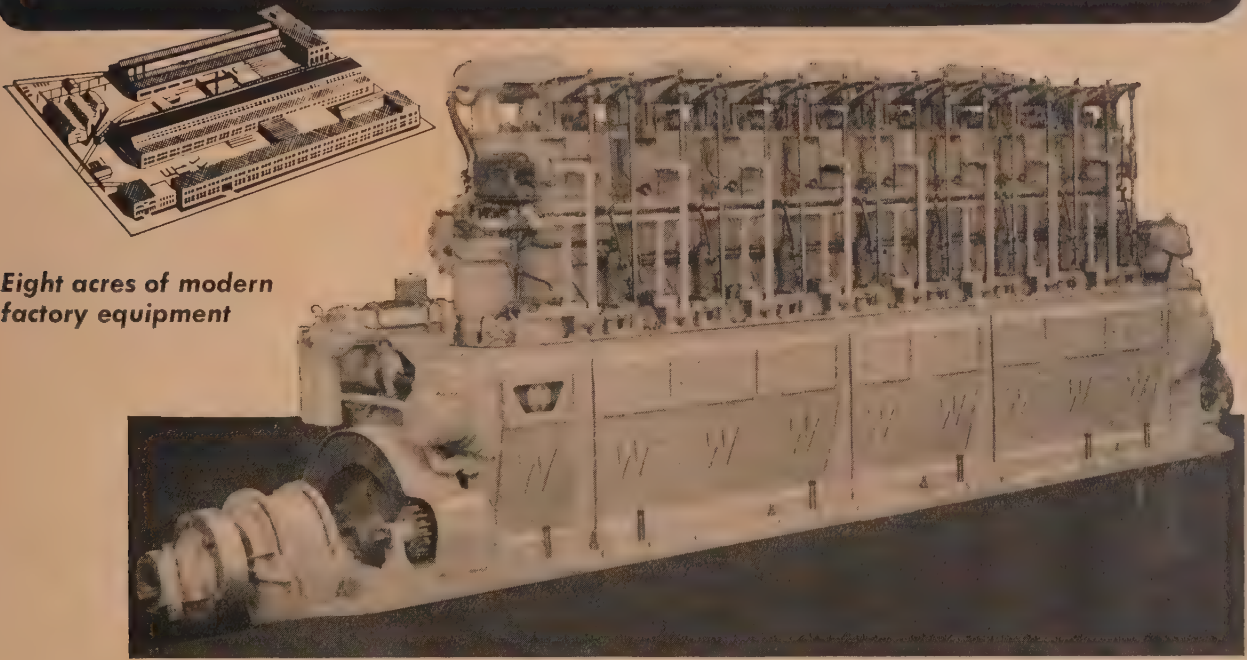

Eight acres of modern factory equipment

Washington diesel engines are built, from pattern to final inspection, in one big plant, with centralized responsibility over every phase of manufacture. The plant has been in continuous operation since 1882. It covers eight acres with completely integrated facilities for design, engineering, pattern making, iron and steel castings, metallurgical testing, forging, welding, machining and fabricating.

Washington diesels are not only paintakingly crafted under one roof, but each marine installation is further safeguarded by expert engineering counsel, efficient service and the certainty of parts availability for years to come.

Proven dependability, plus the utmost assurance of responsibility on the part of the manufacturer, have led experienced vessel owners to choose Washington diesels again and again for over 28 years.

CAPACITY RATINGS

MODEL NUMBER	B. H. P.*	NO. CYLS.	BORE AND STROKE	R. P. M.
3-125	90	3	9" x 12½"	400
4-125	120	4	9" x 12½"	400
5-125	150	5	9" x 12½"	400
6-125	200	6	9" x 12½"	450
8-125	270	8	9" x 12½"	450
3-13	120	3	10¼" x 13½"	360
4-13	160	4	10¼" x 13½"	360
6-13	260	6	10¼" x 13½"	390
8-13	350	8	10¼" x 13½"	390
4-15	200	4	11½" x 15"	327
6-15	330	6	11½" x 15"	360
8-15	440	8	11½" x 15"	360
6-160	400	6	12¾" x 16"	360
8-160	550	8	12¾" x 16"	360
6-18	500	6	14½" x 18"	300
8-18	665	8	14½" x 18"	300
6-20	640	6	16" x 20"	277
8-20	850	8	16" x 20"	277

Ratings shown at right are for standard engines. Ratings for supercharged engines are available upon request.

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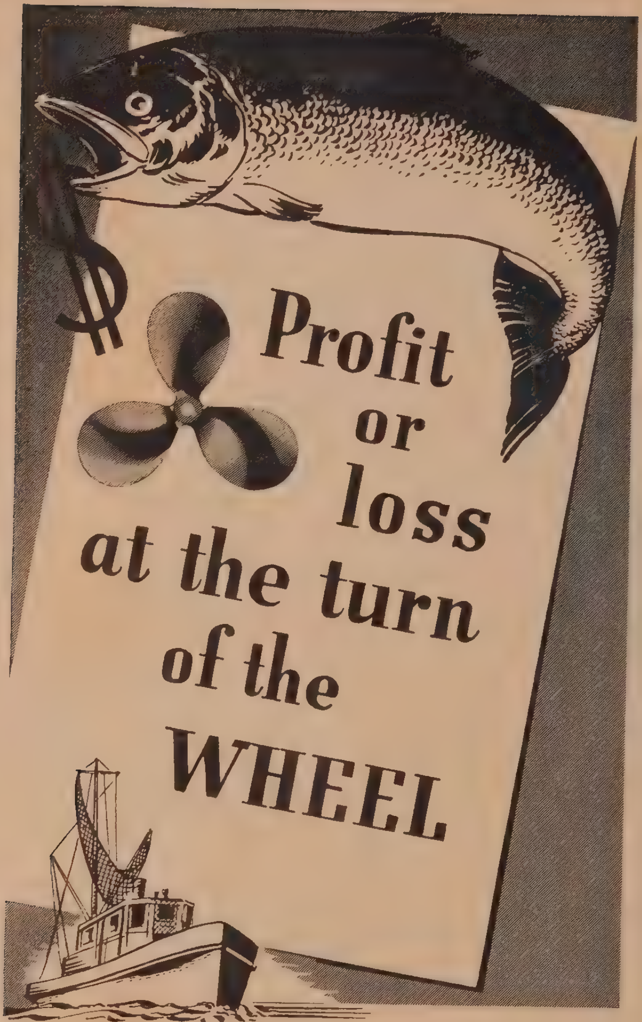
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The fisherman who thinks one propeller is as good as another is probably losing money on every turn of his wheel. FEDERAL propellers are designed to capture every bit of power and convert it into propulsion. They definitely save on gas bills and last longer, too, because the metal they're made from is tough and highly resistant to corrosion. See the "TRU-PITCH" or "COMET" at the nearest FEDERAL dealer and learn why they give you more for your propeller dollars.

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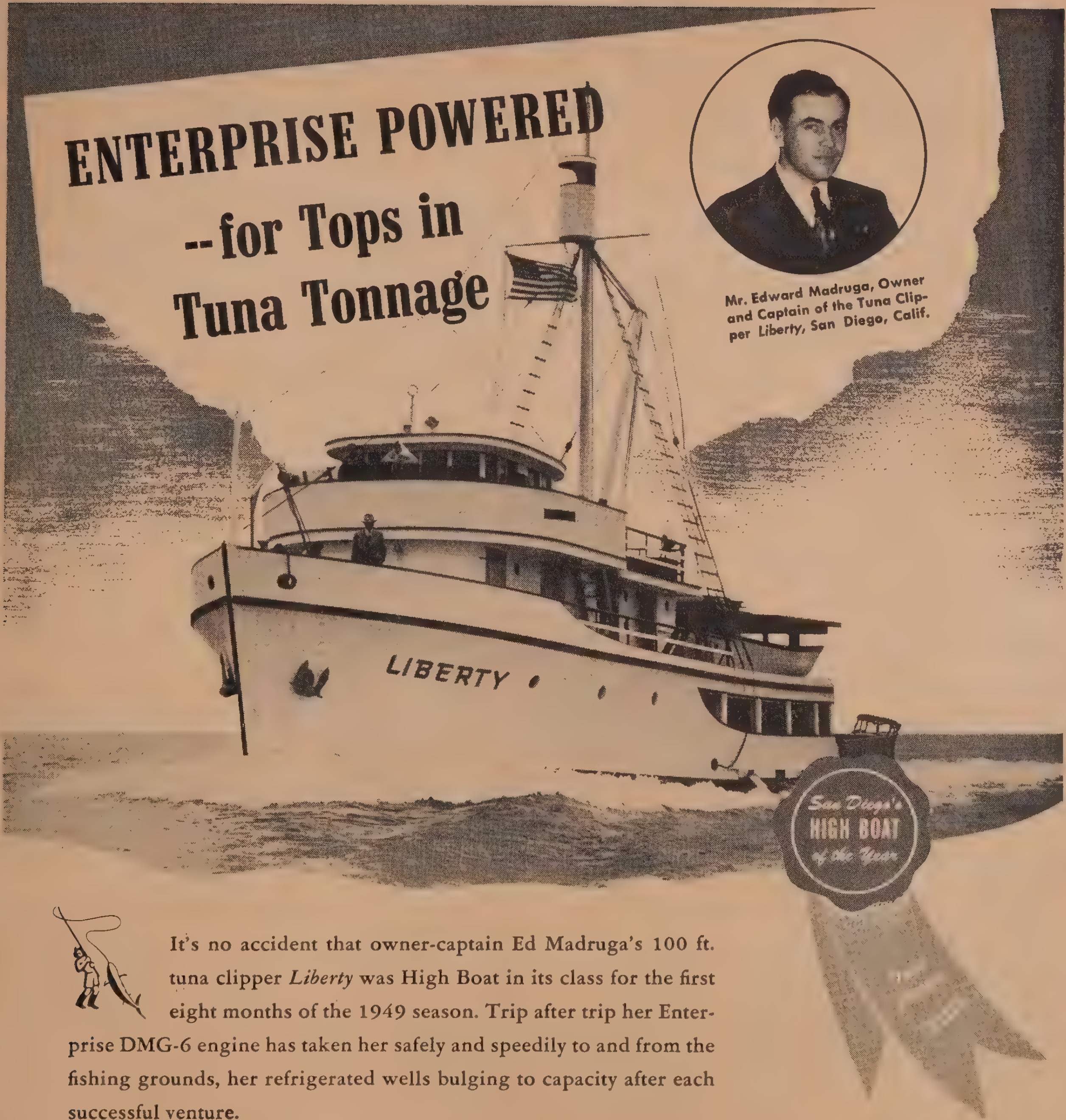
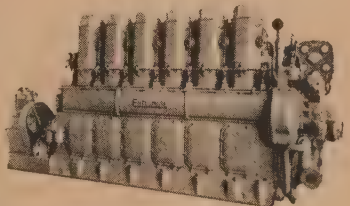


Mr. Edward Madruga, Owner and Captain of the Tuna Clipper Liberty, San Diego, Calif.

It's no accident that owner-captain Ed Madruga's 100 ft. tuna clipper *Liberty* was High Boat in its class for the first eight months of the 1949 season. Trip after trip her Enterprise DMG-6 engine has taken her safely and speedily to and from the fishing grounds, her refrigerated wells bulging to capacity after each successful venture.

Leading craft like the *Liberty* offer positive proof of exceptional power performance in *results.* And the results are measured in continuously profitable fishing operations. So take a tip from the High Boat of San Diego's tuna fleet: specify an Enterprise Diesel for *your* next boat or repowering job—the choice of power experts.



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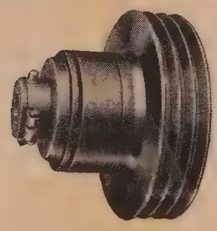
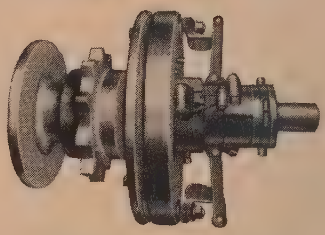


Dry Plate Disc Clutch with V-belt pulley. Capacity 1 to 30 H.P. per 100 R.P.M. Tested at speeds to 4,000 R.P.M.



Interchange Clutch with sprocket. Capacity 2 to 40 H.P. per 100 R.P.M. Speeds up to 800 R.P.M.

Built for sea-going service, Kinney Clutches are the favorites of the fishing fleet. There's no better power take-off for winch, hoist or windlass — they'll pick up the heaviest loads a boat can stand. Kinney Clutches can be instantly engaged or disengaged whether or not the engine is running — only a light pressure on the shift lever is required. Power is transmitted directly through flat discs — not through bolts or engaging mechanism. Simple, rugged construction assures years of trouble-free service. There's a Kinney Clutch for every drive on your boat. Write for information.

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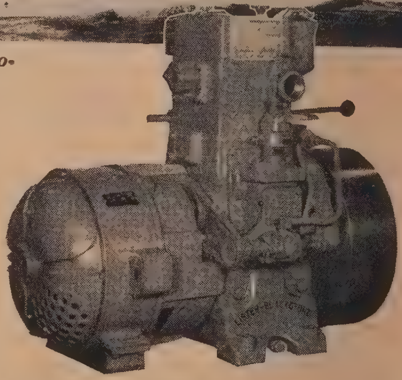

8 HP. LISTER-BLACKSTONE DIESEL AUXILIARY, *typical of installation aboard 'Northern Light', for driving bait tank auxiliary pump, 1½ K.W. generator, compression tank air pump.*

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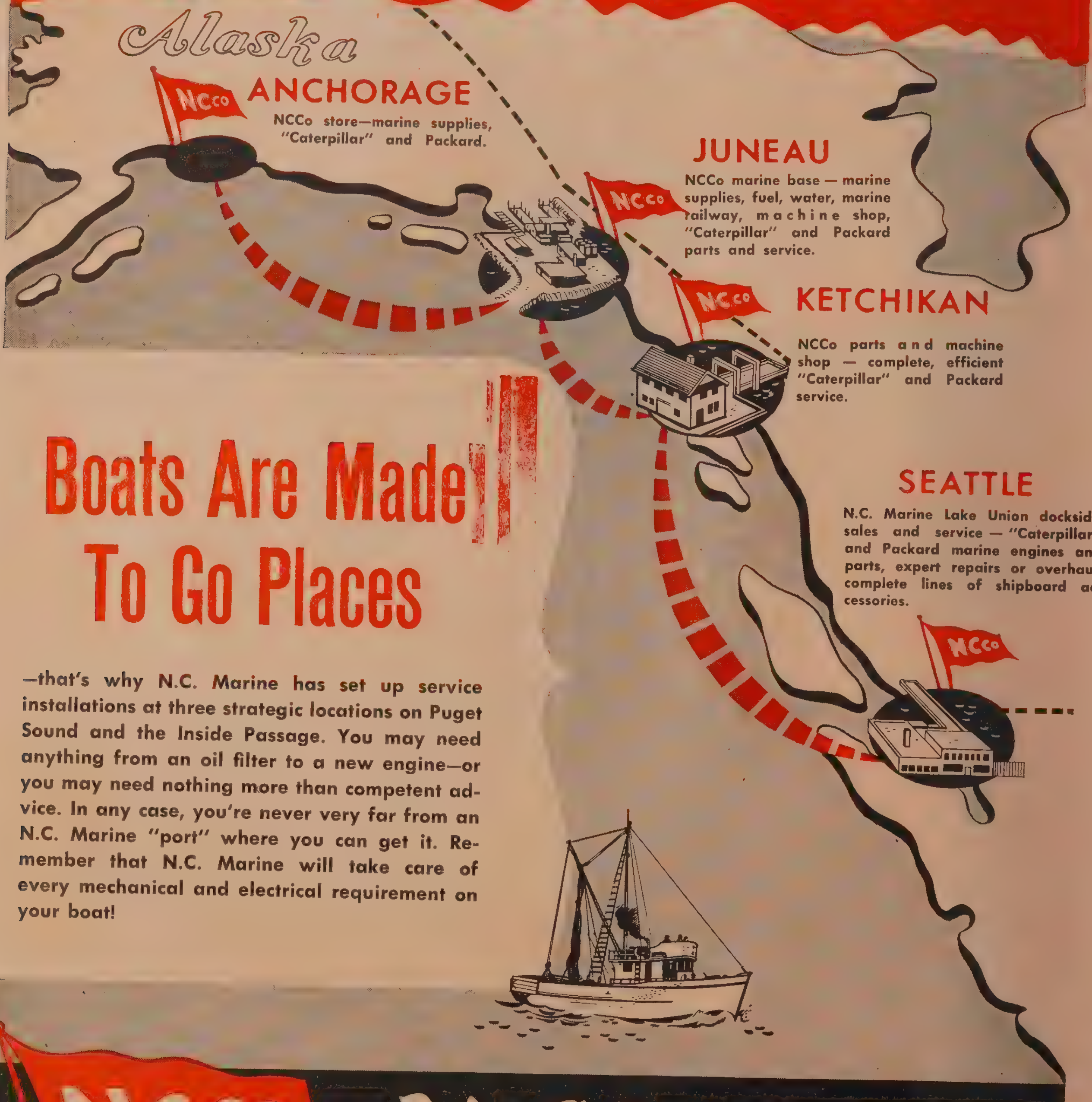

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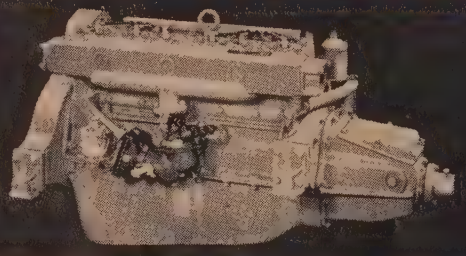

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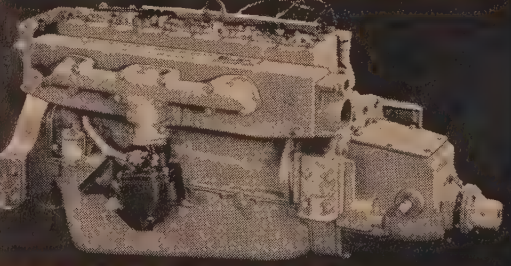

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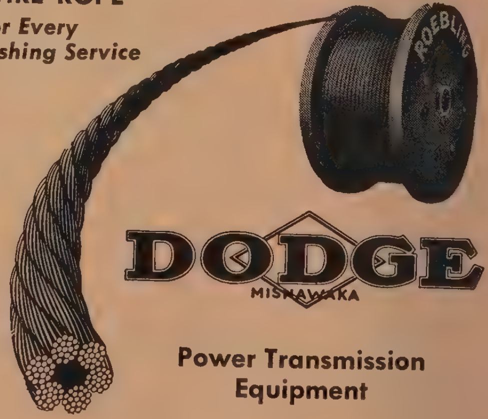

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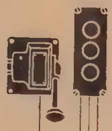

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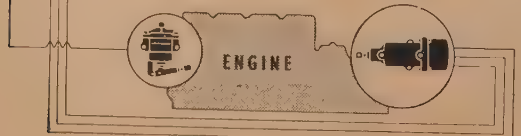

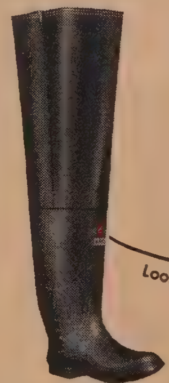

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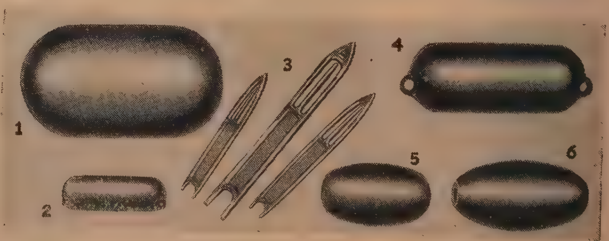

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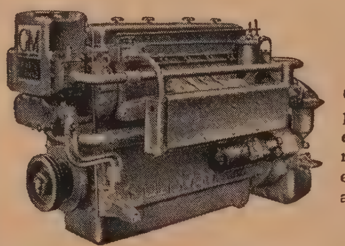

GM Diesel's 2-cycle principle—power at every downstroke—makes these engines easy to start, smooth and powerful.

MORE POWER, LESS WEIGHT *in* LESS SPACE!

GM Diesels make money for fishermen because their compactness means **more "fish-hold" capacity.** Their greater speed cuts down time between Fishing Grounds and Cannery. GM's start quickly and give you long range operation with safety and economy.

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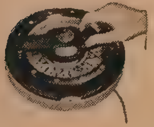
More time Fishing... LESS TIME EN ROUTE

SPERRY MAGNETIC COMPASS PILOT STEERS SHORTEST COURSE FROM PORT TO BANKS, SAVES MANPOWER



With the Sperry Magnetic Compass Pilot, the small fishing craft gets straight steering with less yaw and minimum rudder activity in a rough following sea. Result? A quicker trip from port to fishing banks . . . more time over the fishing grounds.

- ***Full Rudder Control Away From Wheel.*** A Portable *remote control* device enables the fishing captain or mate to have full follow-up rudder control from any part of the boat for . . . supervising all fishing operations while he steers . . . saving valuable time when hauling and handling the winch . . . maneuvering, coming alongside other vessels or docking.

- ***Nothing Could Be Simpler.*** You "dial" your course and the Sperry Magnetic Compass Pilot holds it automatically as long as you wish.

- ***It's Dependable . . .*** few moving parts and a compact, sturdy steering engine.

- ***And Sperry's Behind It.*** The Magnetic Compass Pilot is backed by Sperry's service organization. It brings to the small fishing boat many of the advantages that the Sperry Gyro-Pilot brings to larger craft. Our nearest district office will be glad to give you additional information.

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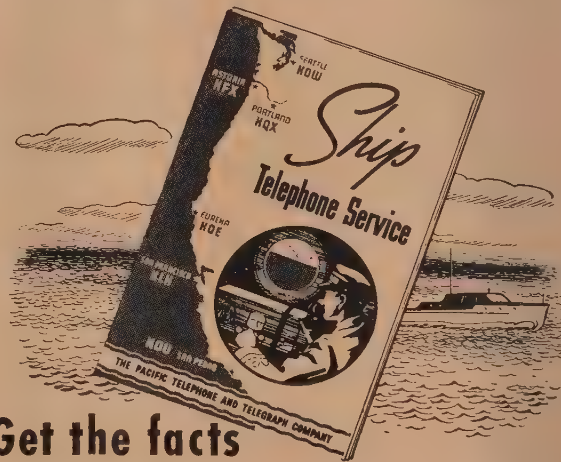

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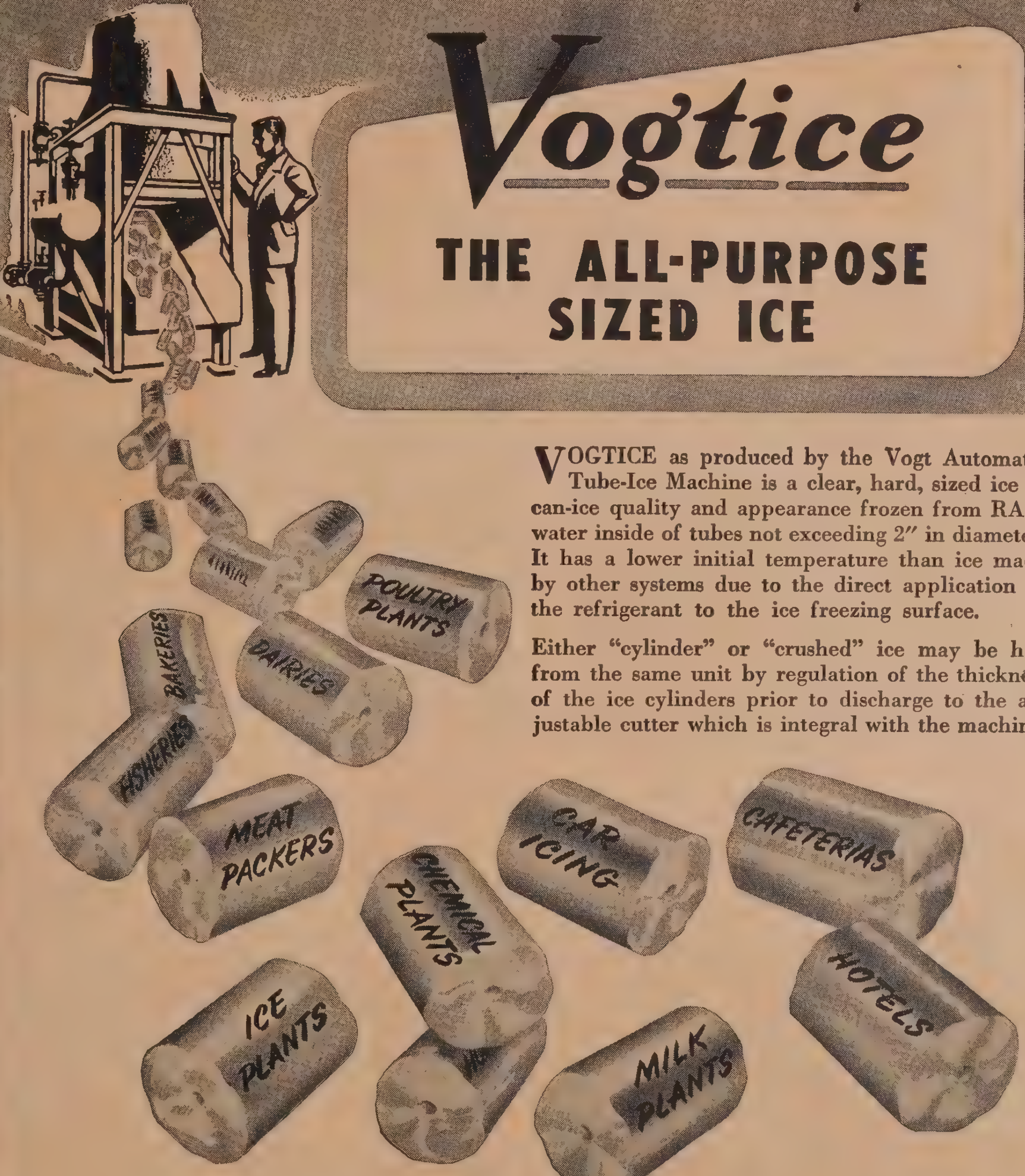

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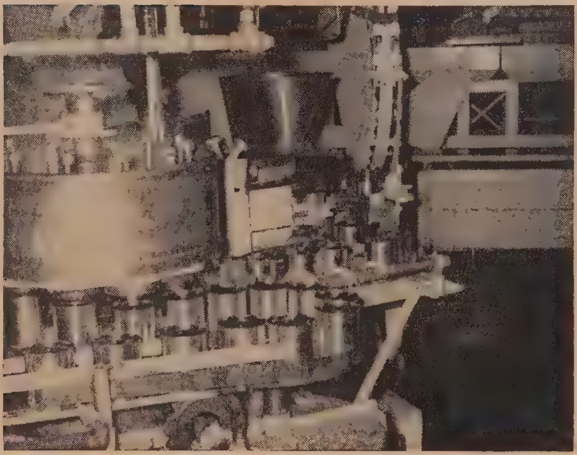
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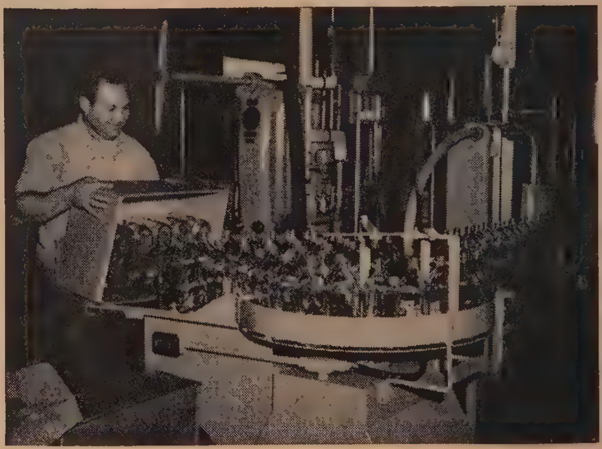
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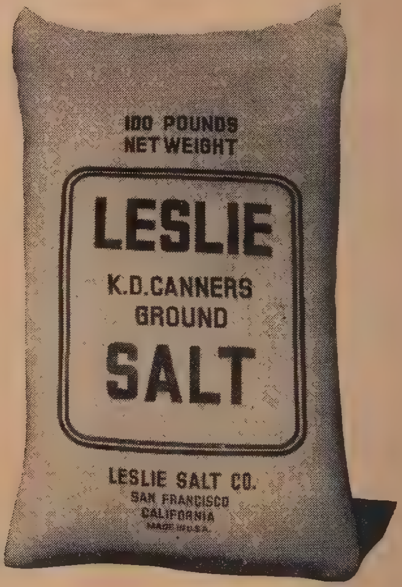

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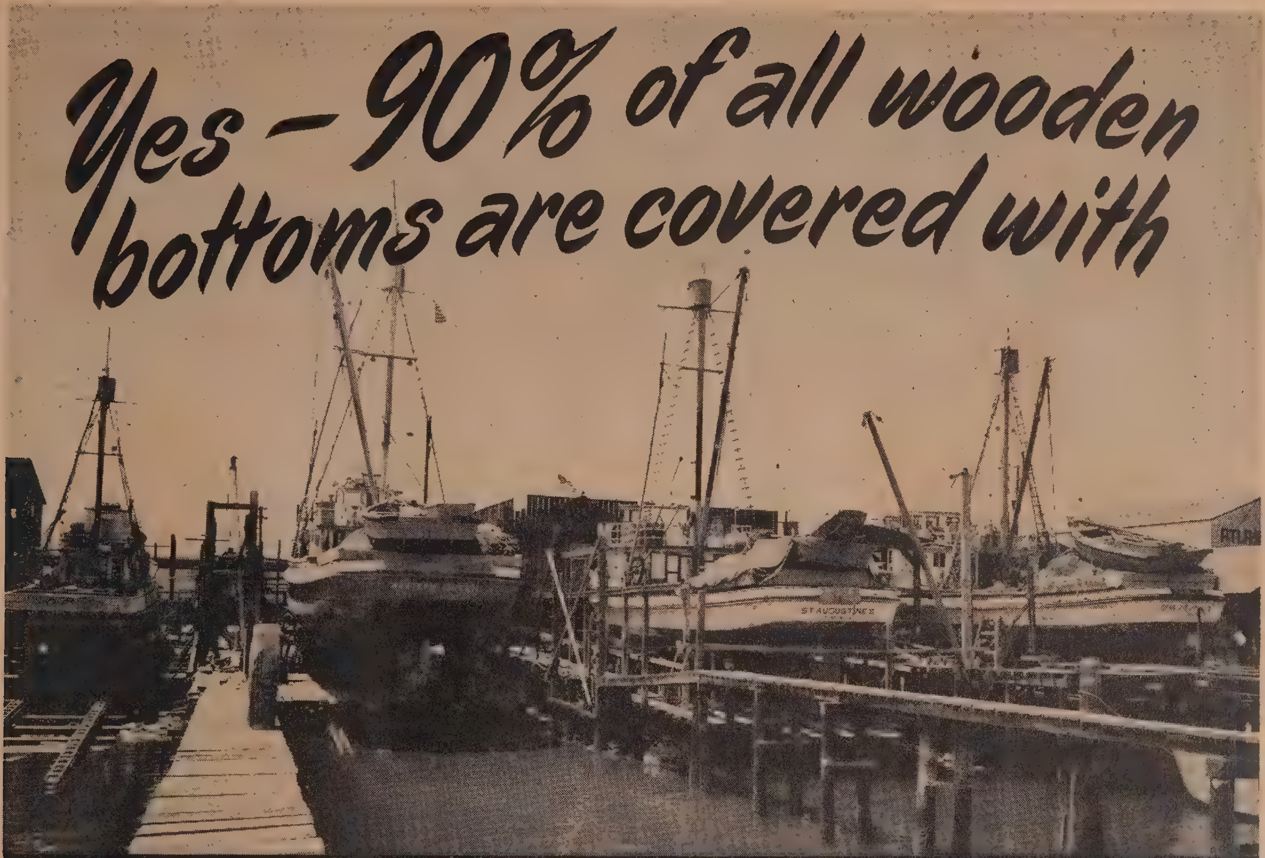
Yes – 90% of all wooden bottoms are covered with



ATLAS GOLD LABEL COPPER COMPOUND

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There's a lifetime of marine paint experience behind the unique formula for Atlas Gold Label. Its "catalyzed" ingredients are today's best insurance against parasitic marine growths that foul and eat away wooden hulls. Insist on Atlas when your boat is painted . . .

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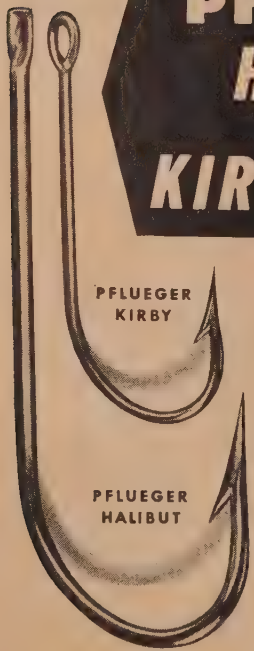

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Michigan Machined-Pitch propellers on the other hand convert all your horse power into miles made good. At the same time they take the lead out of your log and trim up your balance sheet.

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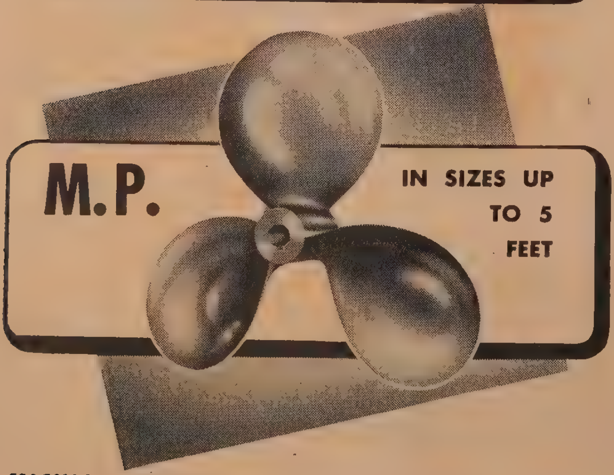

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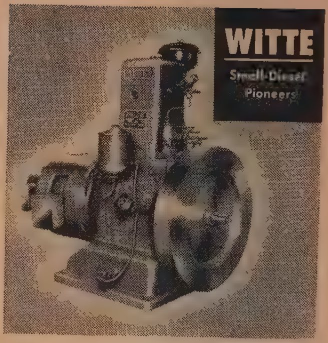

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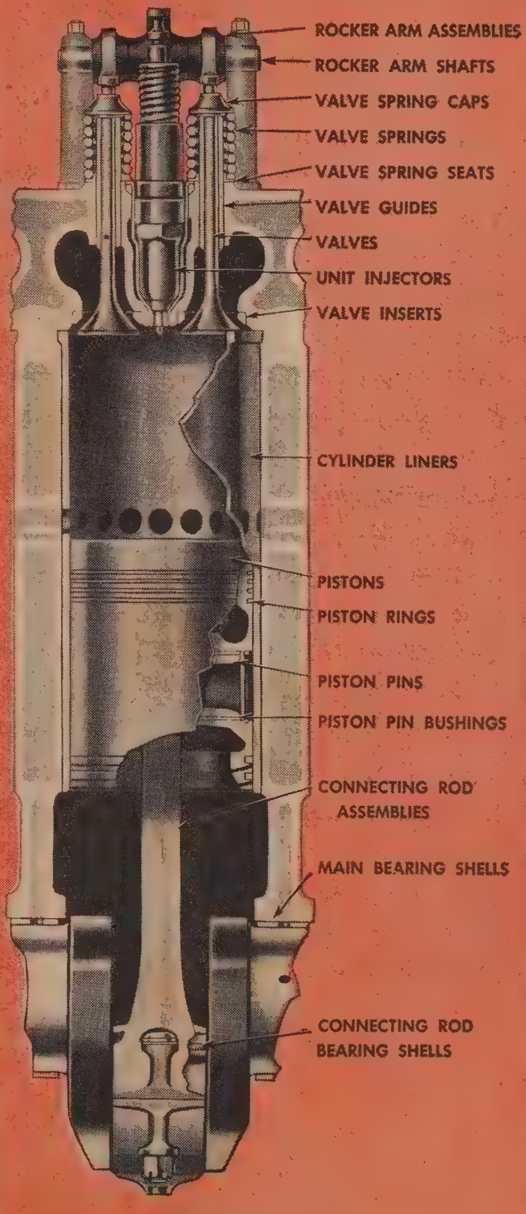
Maximum parts interchangeability is just one of the many *plus* values that go with your purchase of General Motors Diesel engines—a good reason why it pays to *standardize* on GM Series 71 Diesels.

For topmost satisfaction and reliability, always buy genuine "Factory-Engineered GM Diesel parts from your authorized distributor or dealer.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AN OUTSTANDING TUNA CLIPPER

A TOP-NOTCHER IN BEAUTY, ABILITY, COMFORT AND SEAWORTHINESS—AS WELL AS IN EARNINGS!

Like all Peterson-built fish boats, the 107-foot tuna clipper "MERMAID" has numerous innovations calculated to make fishing easier and more efficient. In fact, she has everything it takes to make her a top-notcher in the tuna fleet!

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We have always endeavored to improve our machines for the benefit of our customers and this is a major and outstanding advancement.

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cut engine wear-rate up to 85%

New RPM DELO Lubricating Oils contain advanced, special compounding. Proved in actual operation, they keep engines cleaner, increase protection and extend overhaul periods of all heavy-duty engines.

Cut liner wear rate up to 85%. In service under extreme operation conditions, these new RPM DELO Oils reduced wear-rates up to 85% over conventional heavy-duty type lubricants.

Reduced engine deposits as much as 75%. Superior compounding in new RPM DELO Oils kept top-ring grooves, oil rings, and skirt areas of pistons remarkably clean in high-temperature, high-output truck and tractor engines.

Saved 40% to 60% on maintenance. Records show that new RPM DELO Oils cut maintenance costs as much as 60%, reduced oil consumption 30% to 50% over the long run.

Proved in full range of engine service. This new line covers normal to extremely severe conditions. The grade that meets your needs will double protection against lubrication failures, give you all-around better engine performance.

RPM DELO Heavy Duty Lubricating Oil

A new, high quality-level compounded oil recommended for heavy-duty diesel or gasoline engines in normal to difficult service. (Meets U. S. Army Specification 2-104B.)

RPM DELO Special Lubricating Oil

Companion product to RPM DELO Heavy Duty Lubricating Oil. Has higher viscosity index for special operating conditions. (Also meets U. S. Army Specification 2-104B.)

RPM DELO Supercharged—1 Lubricating Oil

An entirely new product of higher quality-level than the products above. Fortified with new, more powerful compounding. Recommended for severe and abnormal engine service. (Meets U. S. Army Specification 2-104B, Supplemental List No. 1.)

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Highest quality-level oil, designed for extremely severe operating conditions. (Meets U. S. Army Specification 2-104B, Supplemental List No. 2, also the rigid requirements of Caterpillar Tractor Company's Superior Lubricants—Series 2.)

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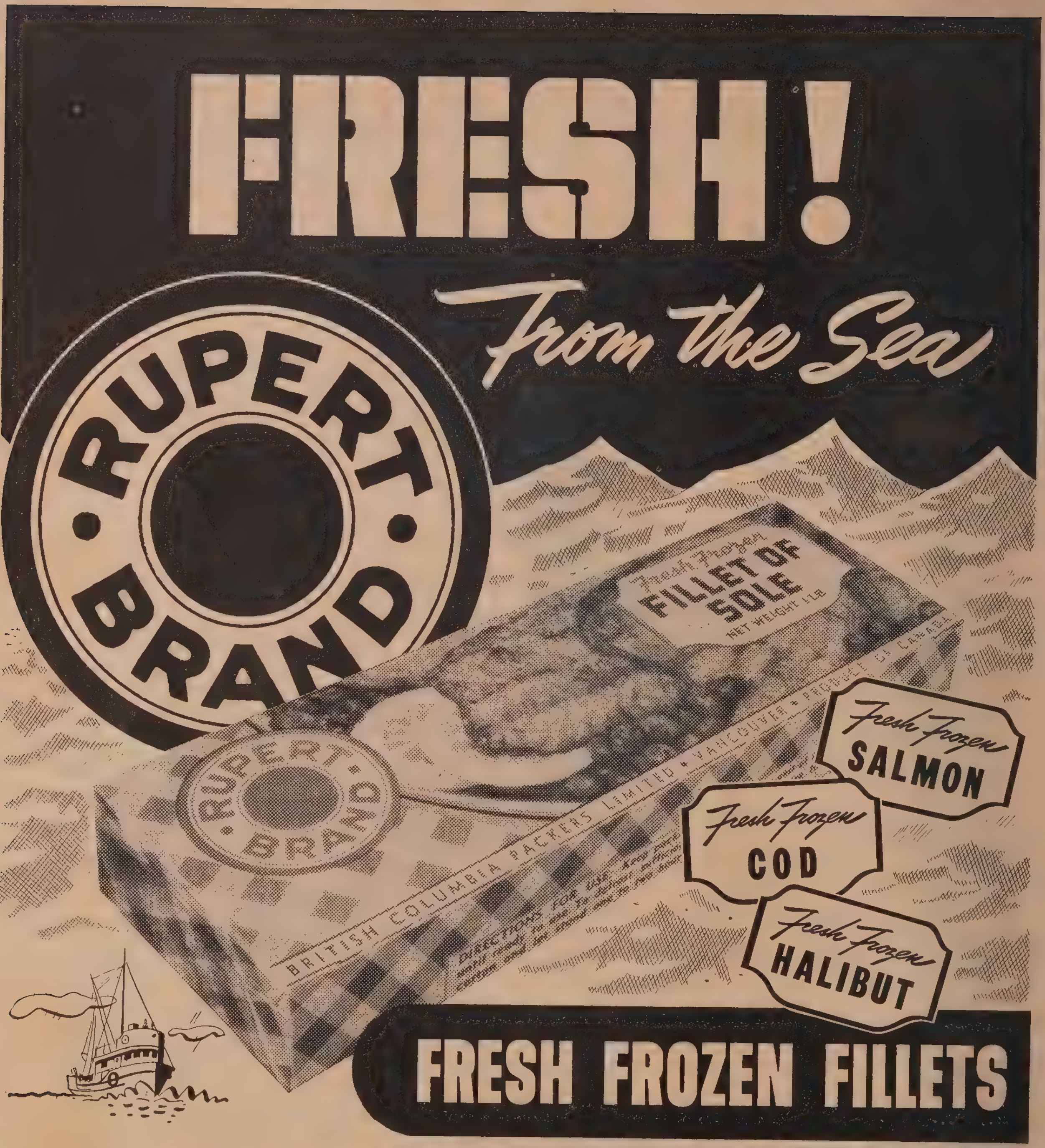
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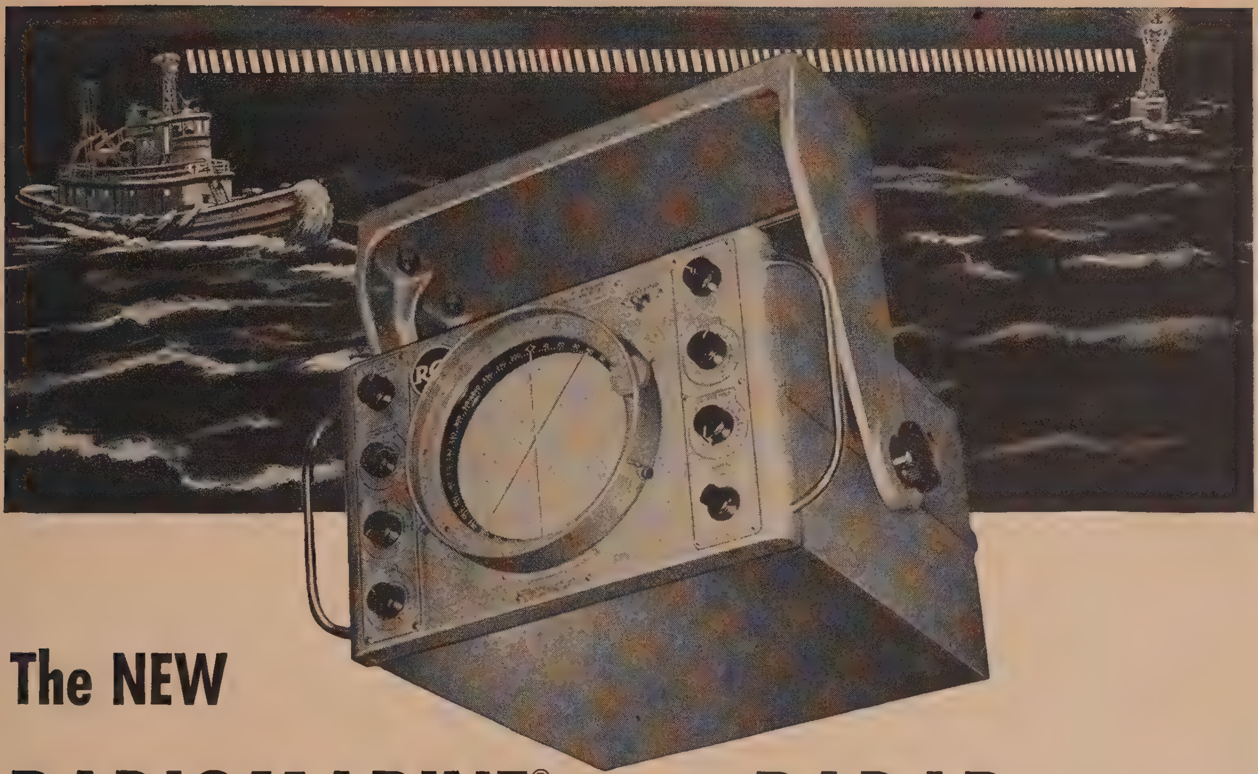

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RADIOMARINE® 3.2 cm RADAR . . .

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Now, mariners aboard small craft also can enjoy the advantages of radar. This new, low-cost Radiomarine Model CR-103 offers all the advantages of modern radar. Use it for pilotage . . . for position finding . . . as an anti-collision aid . . . for detecting storms.

Despite its small size, it has a 30-kilowatt transmitter. Operating on a wave length of 3.2-centimeters, it provides dependable and superior service.

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50-inch diameter low wind resistance antenna, weighs only 150 lbs.

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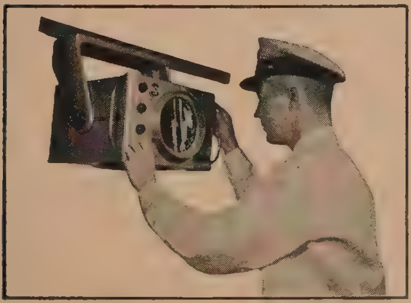
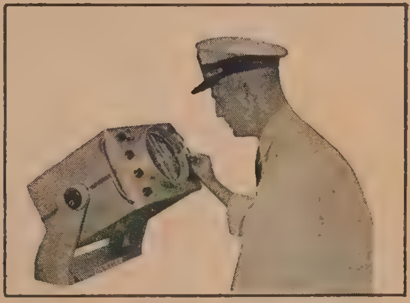
Radiomarine CR-103 Radar will enable small vessels to operate on schedule, regardless of weather, in harbor, at sea or inland waters. Investigate its possibilities for safety and economy for your craft. Write for complete information.



Mounted from the overhead

Mounted on Transmitter/Receiver Cabinet



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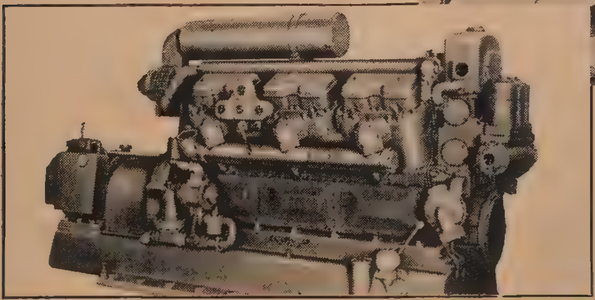
Four new, bigger "Cat" Marine Diesels are now available for bigger jobs on bigger boats, bringing to ten the number you can choose from to work the water profitably. They include Marine Propulsion Engines up to 400 hp. on continuous 24-hour duty . . . Marine Electric Sets up to 314 kw. . . . and Marine Auxiliary Engines up to 500 hp. maximum. Why not see your "Caterpillar" dealer today and find the profit facts about these "Cat" Diesels designed for marine use?

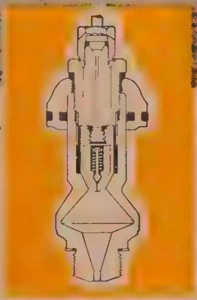
Caterpillar Tractor Co., San Leandro, Calif.; Peoria, Ill.

- Hauling codfish aboard the *Gloucester No. 10* fishing boat on the New Brunswick coast, Canada. "Cat" Marine Engines are the "pay-off" power when it comes to fishing. ▸

- The new D397 develops 400 hp. for continuous day and night performance. It is available with a selection of reverse and reduction gears as well as clockwise or counterclockwise rotation. ▾



This fuel injection valve means lower fuel cost because lower grade fuels can be burned without fouling. The large single orifice eliminates horsepower loss. The specially designed precombustion chamber conditions the fuel for complete efficient burning.



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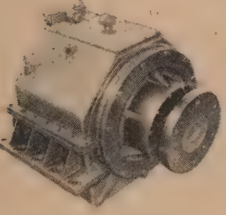

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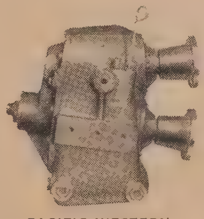
This new type of reduction gear, with medium and high speed Diesel drive, greatly increases cargo capacity. It is specified equipment on many of the large new workboats. Standard units available in capacities up to 2000 hp., larger sizes on special order. Send for details.



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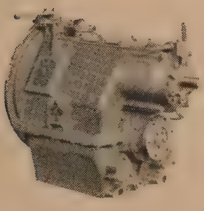

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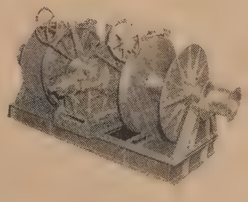

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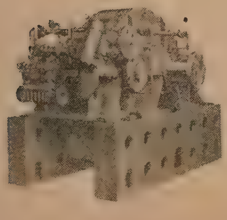
A full line of winches of new, improved design is available for bottom-fishing vessels. Diesel hydraulic or electric drives can be supplied to provide ample line pull and speed range. Send for further details.



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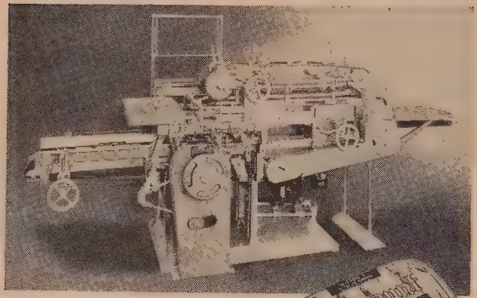
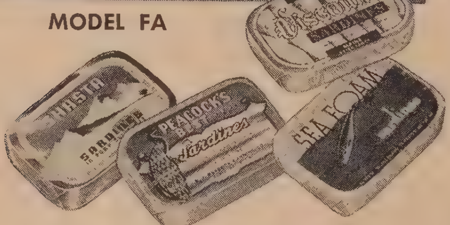


MODEL FA



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Both machines are adjustable for various sizes, have a speed of up to 100 packages per minute, and require only one operator.

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Write for literature on the Model FF and the Model FA

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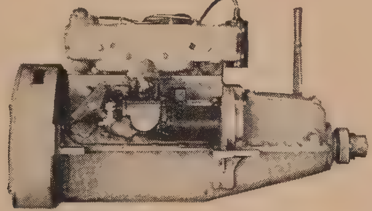

Model	Hp.	R.P.M.	Cyl.	Displ.	Weight
LH-4	45	3200	4	133	440
LH-6	64	2200	6	282	876
LH-Atom	90	3000	6	282	876
LH-Deluxe	120	3000	6	320	916
LH-Super	132	3200	6	339	936

All five models also available with reduction gears.

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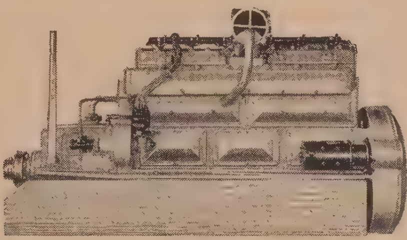
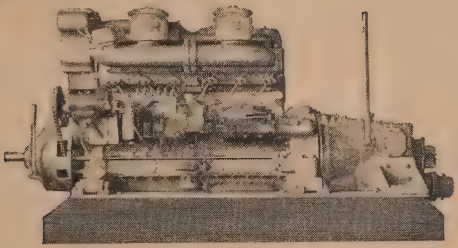


Model	Hp.	R.P.M.	Cyl.	Displ.	Weight
Mystic 100	95	1575	6	525	1700
Mystic 125	130	1800	6	585	1700
Mystic 150	150	1435	6	927	2510
Mystic 175	175	1535	6	1013	2510

ECONOMICAL DIESEL POWER



Model	Hp.	R.P.M.	Cyl.	Displ.	Weight
D-50	50	800	4	665.23	3000
D-60	60	900	4	665.23	3000
D-80	80	800	6	997.84	4200
D-90	90	900	6	997.84	4200
DH-200	187	1600	6	935.00	5100

HEAVY DUTY WORK ENGINES

Models	Hp.	R.P.M.	Cyl.	Displ.	Weight
Engineers' 60	60	875	4	665	2100
Engineers' 75	75	915	4	792	2290
Engineers' 115	118	1000	6	1188	2950
*Standard 21	27	700	3	412	1400
Standard 30	30	660	3	463	1450
Standard 28	28	550	4	550	1700
Standard 40	45	710	4	618	1750

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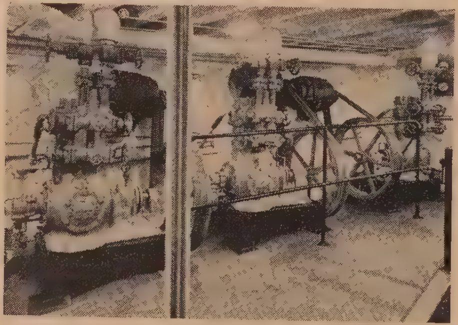

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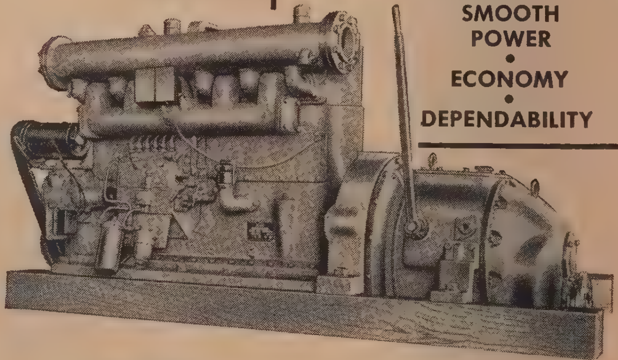

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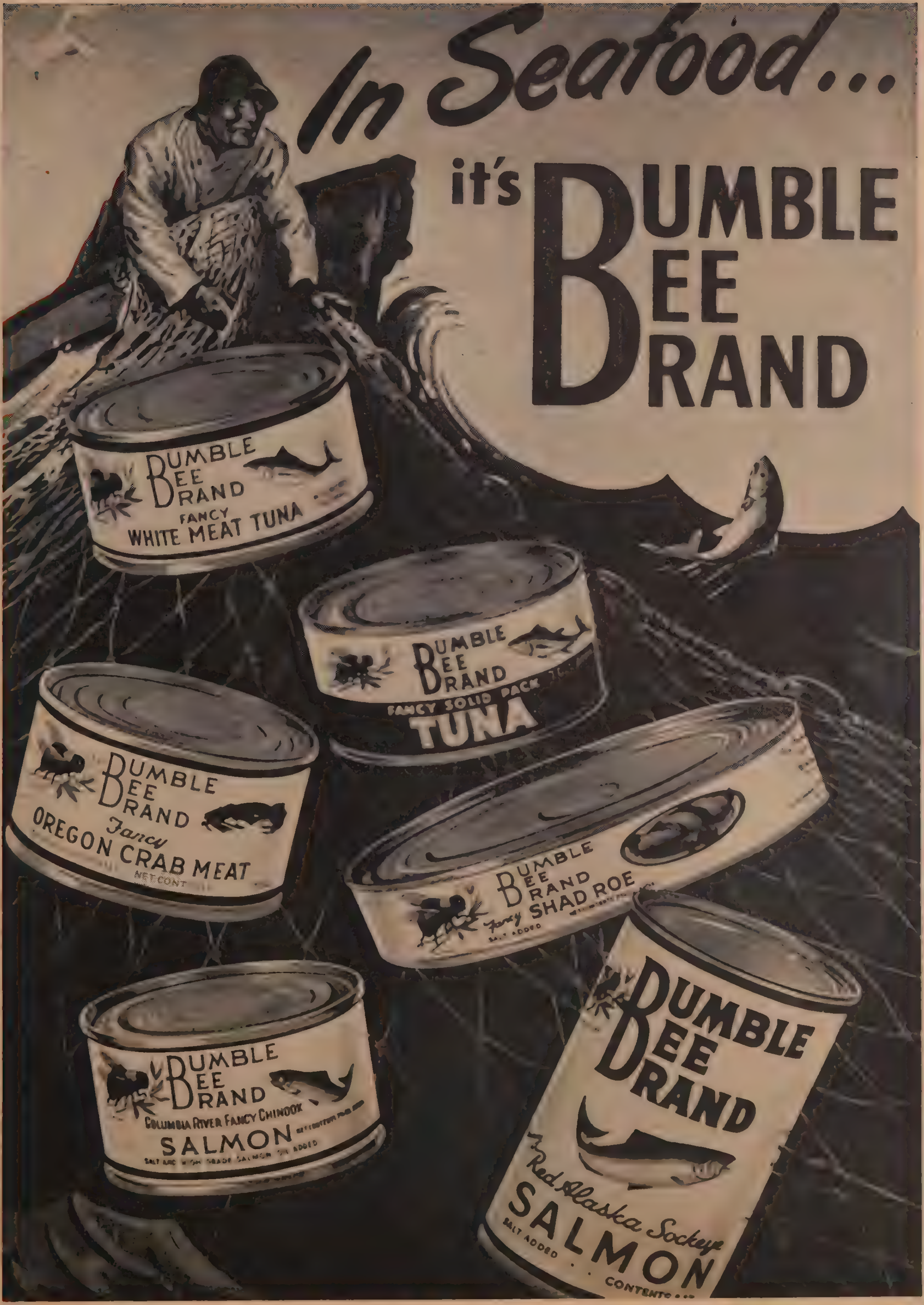
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The shrimp boat, *Skipper Grasso,* owned and operated by Joe Grasso and Son, Inc., Galveston, Texas. Her Monel propeller shaft is 3 inches in diameter by 16 ft. She was built at Four Brothers Shipyard, Galveston, Texas.

—reports the Joe Grasso shrimping fleet

All 17 vessels of the Joe Grasso and Sons, Inc., shrimping fleet are equipped with rustproof Monel* tail shafts.

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"In my opinion, Monel is the finest metal for boat shafting. The Grasso fleet has sailed for ten solid years without a single shaft failure . . . thanks to Monel."

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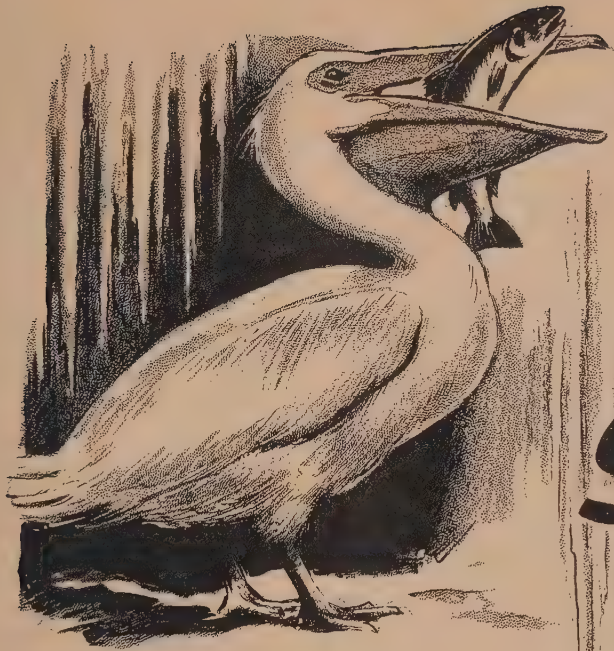

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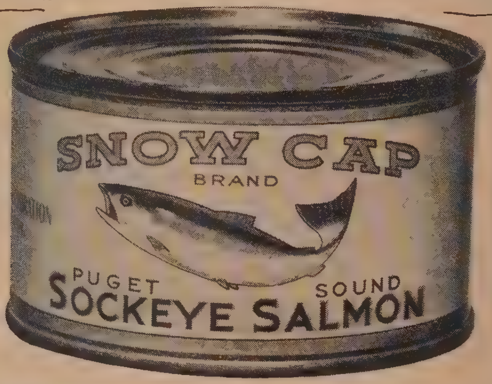
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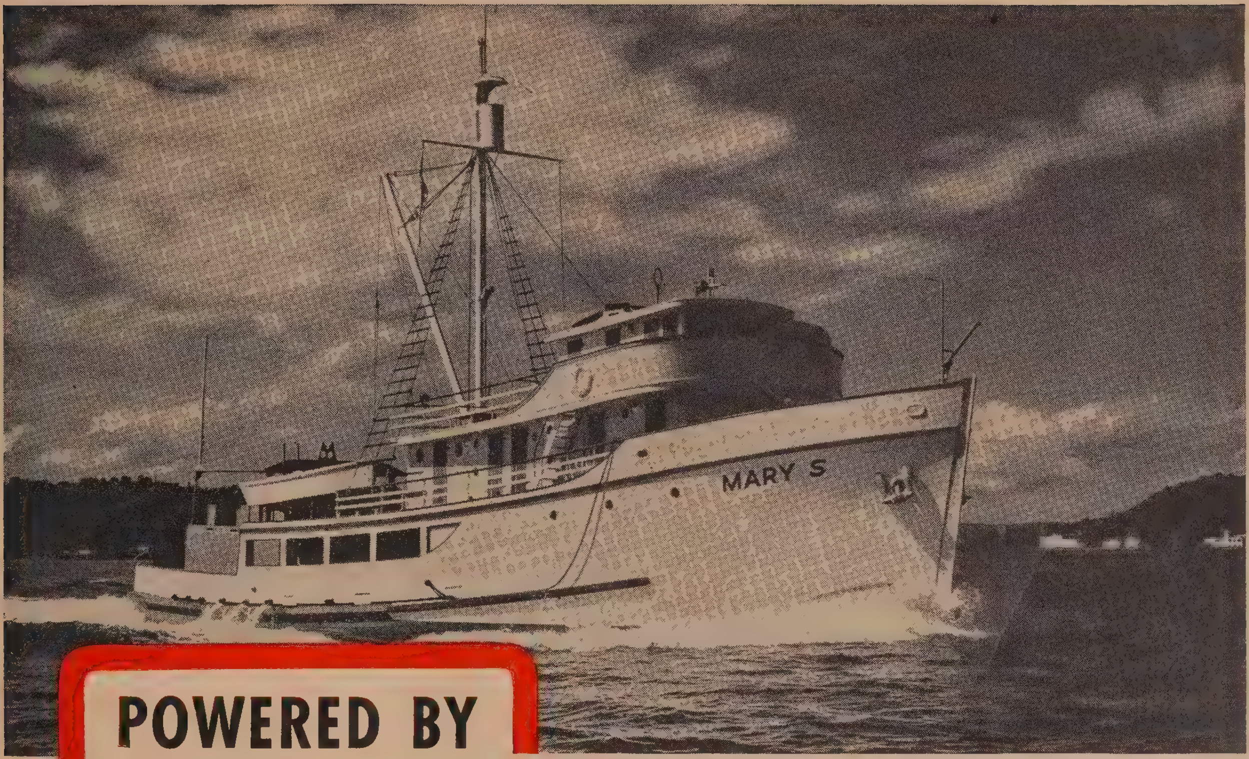

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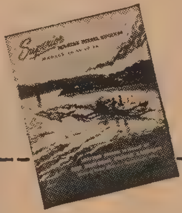

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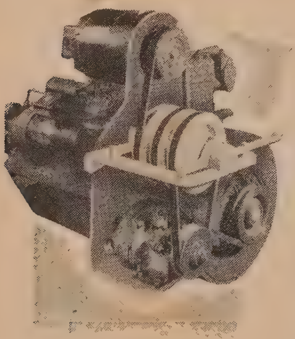

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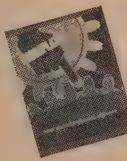

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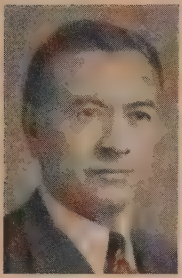
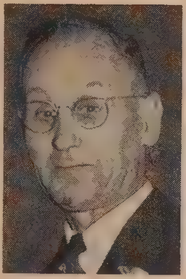


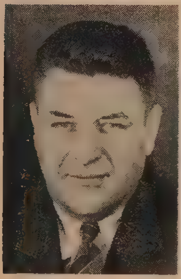
G. W. Nickerson

International Fisheries Commission, Fisheries Hall No. 2, University of Washington, Seattle 5, Wash.—Chairman, G. W. Nickerson; Secretary, Milton C. James; Director of Investigations, H. A. Dunlop.



Sen. Thos. Reid

International Pacific Salmon Fisheries Commission, Dominion Building, New Westminster, B.C.—Chairman, Senator Thomas Reid, New Westminster, B. C.; Secretary, Alvin Anderson, Smith Tower, Seattle; Chief Biologist, Loyd A. Royal; Chief Engineer, Milo C. Bell.



R. E. Walker

Fisheries Research Board of Canada, Ottawa, Canada — Pacific Committee, R. E. Walker, Vancouver, chairman; Dr. R. E. Foerster, director, Pacific Biological Station, secretary; director, Pacific Fisheries Experimental Station, Vancouver, Dr. N. M. Carter.

C. L. Anderson

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A. J. Whitmore

Dominion of Canada, Department of Fisheries, 402 Pender St., West, Vancouver, B. C.—A. J. Whitmore, Chief Supervisor of Fisheries; F. Warne, assistant chief supervisor; T. Taylor, supervisor. New Westminster; J. F. Tait, supervisor, Nanaimo; G. S. Reade, supervisor, Prince Rupert.

Milton James

United States Fish and Wildlife Service, Department of the Interior, Washington 25, D. C.—Director, Albert M. Day; Assistant Directors, Milton James and Clarence Cottam.

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Regional Office, Region One, Swan Island, Portland 18, Ore.—Director, Leo L. Laythe; Assistant Regional Director, Samuel J. Hutchinson.

Alaska Regional Office, Box 1091, Juneau, Alaska—Regional Director, Clarence J. Rhode; Supervisor, fishery management and research, George B. Kelez; Supervisor of Enforcement, Dan H. Ralston.

Central Valley Fishery Investigations, Stanford University, Stanford, Calif.

Alaska Fishery Investigation, 2725 Montlake Blvd., Seattle 2, Wash.—Chief, George B. Kelez.

Fishery Products Laboratory, Ketchikan, Alaska—Harris W. Magnusson, technologist in charge.

Market News Service, Room 2, Post Office Bldg., San Pedro, Calif.—Carl B. Tendick, in charge.

Market News Service, 421 Bell St. Terminal, Seattle, Wash.—Edwin C. Hinsdale, in charge.

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Pacific Oceanic Fishery Investigation, P. O. Box 3830, Honolulu, T. H.—Director, Oscar E. Sette; Assistant Director, Fred F. Johnson.

North Pacific Fishery Investigations, 2725 Montlake Blvd., Seattle 2, Wash.—Joseph T. Barnaby, chief.

South Pacific Fishery Investigations, 450-B Jordan Hall, Stanford University, Stanford, Calif.—Chief, John C. Marr.

Technological Investigations, 2725 Montlake Blvd., Seattle 2, Wash.—Maurice E. Stansby, chemist in charge.

Western Fish Cultural Investigations, 2725 Montlake Blvd., Seattle 2, Wash.—Joseph T. Barnaby, acting in charge.

Pacific Marine Fisheries Commission, Governor Bldg., Portland, Ore.—Chairman, Alvin Anderson; John T. Gharrett, research coordinator.

R. S. Croker

State of California, Division of Fish and Game, Ferry Bldg., San Francisco, Calif.—Executive Officer, E. L. Macaulay; Bureau of Marine Fisheries, Richard S. Croker, Chief.

A. J. Suomela

State of Oregon, Fish Commission, Governor Bldg., Portland, Ore.—Chairman, John C. Veatch; Master Fish Warden, Arnie J. Suomela; Director of Research, Donald McKernan.

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State of Washington, Department of Fisheries, Smith Tower, Seattle, Wash.—Director, Alvin Anderson; Chief Biologist, Norman A. Riddell.

G. J. Alexander

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Fisheries Council of Canada, Ottawa, Ont.—First Vice President, Pacific Coast, R. Bell-Irving, 926 West Pender St., Vancouver, B.C.

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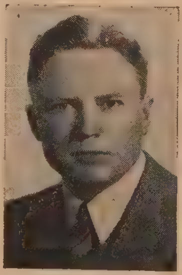
Fisheries Research Institute, Fisheries Hall No. 4, University of Washington, Seattle 5, Wash.—Director, Dr. William F. Thompson.



R. Van Cleve

School of Fisheries, University of Washington, Fisheries Hall No. 1, Seattle 5, Wash.—Acting Director, Dr. Richard Van Cleve.

Pacific Fisheries Conference, 71 Columbia St., Seattle 4, Wash.—Chairman, Miller Freeman; Vice Chairman, Edward W. Allen; Secretary, Montgomery Phister.

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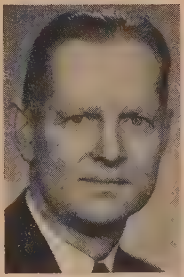

C. F. Johnson

Alaska Salmon Industry, Inc., 200 Colman Bldg., Seattle 4, Wash.—President, C. F. Johnson; Managing Director, W. C. Arnold.

E. M. Brennan

Association of Pacific Fisheries, 200 Colman Bldg., Seattle 4, Wash.—President, E. M. Brennan; Secretary, Dr. E. D. Clark.

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P. Hollywood

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British Columbia Oyster Growers Association, Ladysmith, Vancouver Island, B.C.—W. J. Jones, president; E. Timothy, secretary.

J. H. Cellars

Columbia River Salmon and Tuna Packers Association, P. O. Box 60, Astoria, Ore.—Secretary, James H. Cellars.

J. R. Perry

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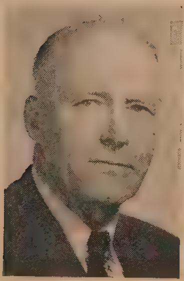
M. G. Brown



J. L. Wiegardt

Pacific Coast Oyster Growers Association, Room 4, Ferry Dock, Seattle 4, Wash.—President, John L. Wiegardt; Vice-President, F. W. Mathias; Secretary-Treasurer, Charles R. Pollock.

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R. O. Pierce

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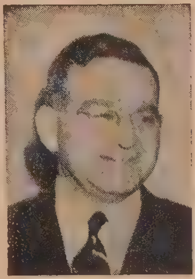

S. M. Rosenberg

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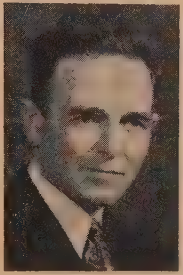
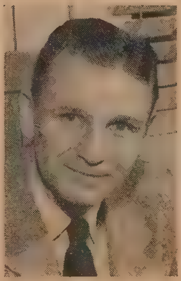


E. Johansen

Alaska Herring Skippers Association, 809 Seaboard Bldg., Seattle, Wash.—President, Emil Johansen; Business Manager, G. Bradley Dalton.

American Tuna Boat Association, San Pedro, Calif. —President, M. O. Medina; Manager, Harold F. Cary.



H. F. Cary

Alaska Trollers Association, Ketchikan, Alaska — President, Charles E. Coles; Secretary, Paul J. McCurdy.

Crab Boat Owners Association of Northern California, Eureka, Calif.—President, S. E. Albin.

B. G. Johnston

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Fishing Vessel Owners Association, Pier 59, Seattle, Wash.—President, Emil Nilson, Manager, Harold E. Lokken.

Emil Nilson

Canadian Halibut Fishing Vessel Owners Association, Prince Rupert, B.C.—President, Barney Roald; Secretary, Ole Stegavig.

Fishermen's Cooperative Federation (B.C.), 995 East Cordova St., Vancouver, B. C.—General Manager, T. H. Sorensen; Secretary-Treasurer, D. G. Macdonald.

Fishermen's Cooperative Association, Fishermen's Wharf, San Pedro, Calif.—President, John Zankich.

Fishing Vessel Owners Association of British Columbia, 138 East Cordova St., Vancouver, B.C.—President, Capt. Dan Larsen; Secretary, Harold A. Christenson.

Juneau Fishing Vessel Owners Association, Box 2191, Juneau, Alaska—President, Dan K. Twiet; Vice-President, Larry Fitzpatrick; Secretary-Treasurer, Edmund J. Krause.

Dan Twiet

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Pacific Fisheries Organizations

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R. Blendheim

Ketchikan Fishing Vessel Owners Association, Ketchikan, Alaska—Richard Blendheim.

Federated Boat Owners Association, San Pedro, Calif.—President, Gennaro DiLeva, Secretary, Nick Trani.

J. J. Camillo

Lower California Fisheries Association, 935 West Harbor Drive, San Diego 1, Calif.—President, Anthony S. Chiappe; Business Manager, J. J. Camillo.

LaConner Fishermen's Cooperative Association, LaConner, Wash.—President, Edward Millward; Secretary-Manager, William Alvord.

F. J. Cardinale

Monterey Purse Seine Association, 9 Municipal Wharf, Monterey, Calif.—President, Frank J. Cardinale; Vice-President, Sal Colletto; Secretary, Horace Balbo; Treasurer, John G. Spadaro.

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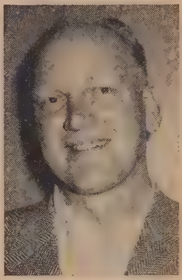

H. Andersen

Pacific Coast Purse Seiners Association, Pier 59, Seattle 1, Wash.—President, Harold Andersen.

N. Mladinich

Purse Seine Vessel Owners Association, 5301 North Ruby St., Tacoma, Wash.—Secretary, Nick Mladinich.

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Victor Nigro

Southern California Fishermen's Association, 418 Harbor Lane, San Diego, Calif.—President, Victor Nigro; Vice President, J. Oliveri; Secretary-Treasurer, C. J. Alexander.

San Diego Commercial Boat Owners, Inc., Pier 2, San Diego, Calif.—President, John N. Kelly; Secretary-Treasurer, Charles White.

San Francisco Purse Seine Vessel Owners Association, 350 Jefferson St., San Francisco 11, Calif.—President, Guiseppe Torrente; Vice President, Frank Gandolfo.

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Jas. Waugh

Cannery Workers Union of the Pacific, A. F. of L., 450 Seaside Ave., Terminal Island, Calif.—President, James Waugh.

Alaska Fish Cannery Workers Union, 212 Fifth Ave. South, Seattle, Wash.

Alaska Fishermen's Union, See I. F. A. W. A.

Alaska Fishermen's Council, Anchorage, Alaska.—President, A. A. Owen.

Alaska Salmon Purse Seiners Union, Petersburg, Alaska—Locals at Ketchikan, Hydaburg, Craig, Kake and Waterfall.

H. Grotle

Deep Sea Fishermen's Union of the Pacific, 5215 Ballard Ave., Seattle, Wash.—Secretary-Treasurer, Harold Grotle; Seattle Agent, Carl Ness; Ketchikan agent, Helge Pedersen; Juneau Agent, Milton Nyman; Petersburg Agent, Walter A. Lersten.

Astoria Otter Trawlers Union, Astoria, Ore.—President, Al Mather; Secretary, William Elder.

Cannery Workers and Farm Laborers' Union, P. O. Box 3102, 221 Second Ave., Seattle, Wash.—President, Ray A. Cabanilla; Secretary, Prudencio Mori.

Cannery Tendermen's Union, 327 North 46th St., Seattle, Wash.

Pacific Fisheries Organizations

(Data as of Jan. 1, 1950)

Geo. Issel

Fish Cannery Workers and Fishermen's Union of the Pacific, 257 5th St., Richmond, Calif.—Secretary-Treasurer, George Issel; assistant Secretary-Treasurer, William J. Gray. (San Francisco branch, 16th and Capp Sts.; Moss Landing branch, general delivery.)

Cannery Workers & Fishermen's Union, 640 State St., San Diego 1, Calif.—Secretary-Treasurer, Lester Balinger.

Codfish Workers Union, 513 Fourth and Cherry Bldg., Seattle, Wash.—Secretary, Gust Dahlbeck.

Columbia River Fishermen's Protective Union, See I. F. A. W. A.

Deep Sea Fishermen's Federal Union of B.C., Prince Rupert, B.C.—Secretary, George Anderson.

Monterey Cannery Workers Union, A. F. of L., Monterey, Calif.—President, Joseph Perry, Secretary-Treasurer, Roy Humbracht; Business Agent, Lester Caveny.

Seine and Line Fishermen's Union of Monterey, 233 Alvarado St., Monterey, Calif.—President, Thos. P. Flores; Secretary-Business Agent, John Crivello.

Seine and Line Fishermen's Union, A. F. of L., San Pedro, Calif. —John Calise, temporary agent.

Wm. Walton

United Alaska Fishermen & Cannery Workers Union, A. F. of L., Sitka, Alaska — President, William Walton, Sitka; Secretary, Peter C. Nielsen, Sitka.

J. F. Jurich

International Fishermen & Allied Workers of America, C. I. O., 4124 Arcade Bldg., Seattle 1, Wash. — President, J. F. Jurich; Vice President, Oscar Anderson; Secretary-Treasurer, Jeff Kibre.

Locals and Affiliates—

Alaska Fishermen's Union, 84 Union St., Seattle, Wash.,—Secretary, Oscar Anderson; Assistant Secretary, Hans Hansen.

Abe Lehto

Alaska Fishermen's Union, 49 Clay St., San Francisco—Agent, Abe Lehto.

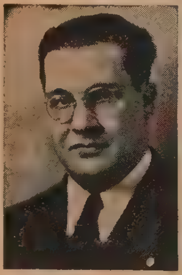
Cordova District Fisheries Union, Box 939, Cordova, Alaska—Secretary, H. J. Lannen.

IFAWA Local 34, 2907 Jones St., San Francisco, Calif. — Secretary, John Pastorino.

IFAWA Local 33, Berth 73, Fishermen's Wharf, San Pedro, Calif.—Secretary, George Ivankovich.

IFAWA Local 3, 84 Union St. Seattle, Wash.—Secretary, Robert Cummings.

IFAWA Local 46, Unalakleet, Alaska—Secretary, Joe Nashoalook.



Henry Niemela

Columbia River Fishermen's Protective Union, Box 142, Astoria, Ore. — President, R. G. Bristow; Executive Secretary, Henry Niemela.

Andy Barlow

United Trollers of Alaska, Box 2199, Juneau, Alaska — Secretary, Andy Barlow.

Nick Kulgis

Otter Trawlers Union, IFAWA Local 53, Pier 59, Seattle, Wash. — Secretary, Nick Kulgis.

Westward Alaska Fisheries Council, 223 Central Bldg., Anchorage, Alaska—President, John Wiese.

R. McKay

United Fishermen's Cooperative Association, 2195 Commissioner St., Vancouver, B. C. — President, R. McKay; General Manager and Secretary, Karl Dybhavn.

Prince Rupert Fishermen's Cooperative Association, P. O. Box 1580, Prince Rupert, B. C.—President, A. Martinusen; Secretary, K. F. Harding.

United Fishermen of Alaska, A. F. of L., P. O. Box 47, Kodiak, Alaska —President, W. A. Cannon; Secretary, P. J. Kerrigan.

United Fishermen and Allied Workers Union, 138 East Cordova St., Vancouver, B.C. — President, George Miller; Secretary, Homer Stevens.

Shoalwater Bay Oyster Workers Union, Nahcotta, Wash.

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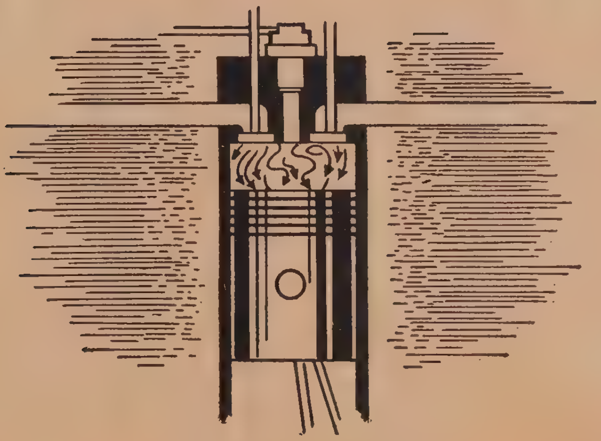

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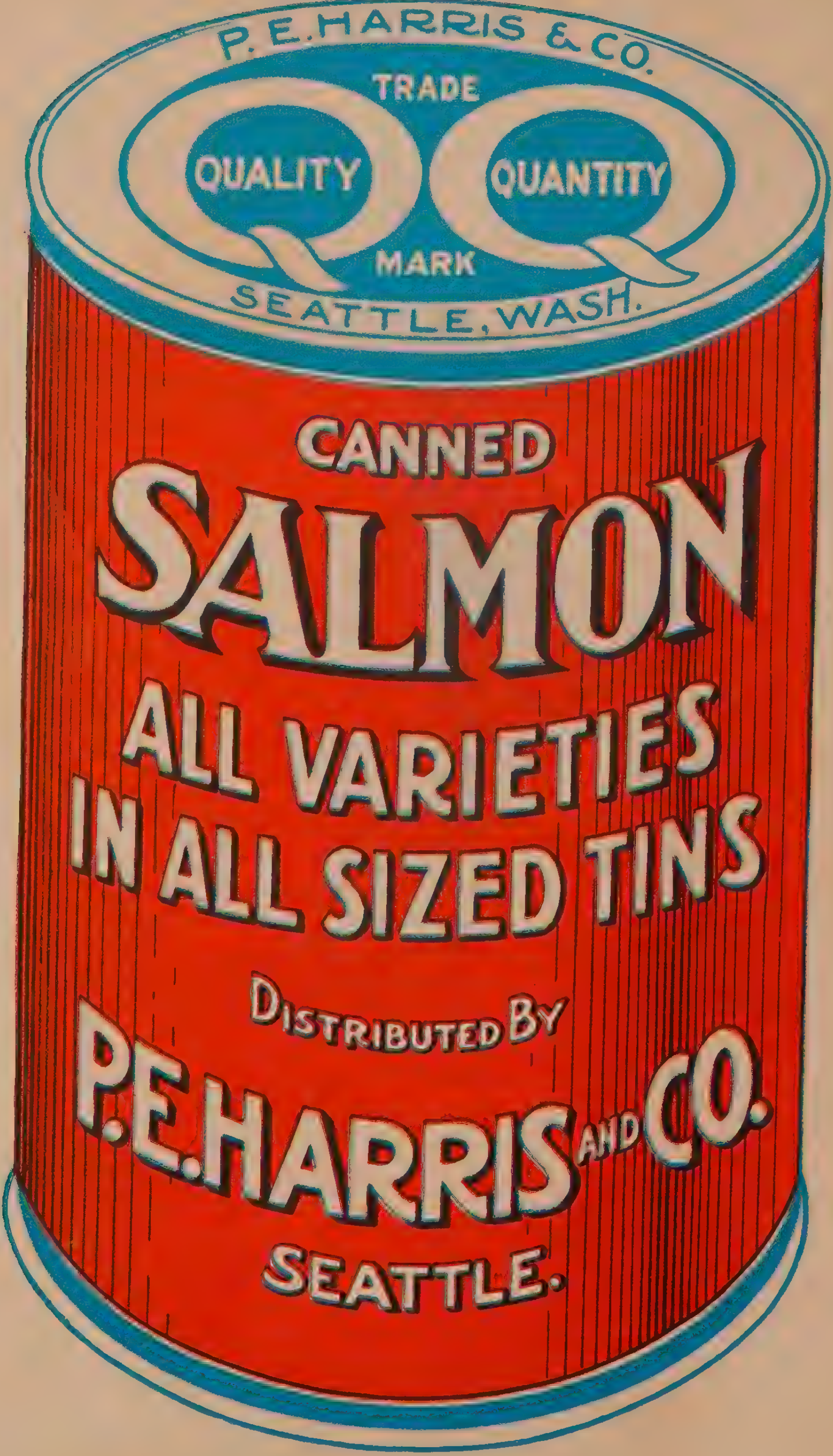
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OPERATING PLANTS IN ALASKA:

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SALMON

Pink salmon production in 1949 jumped to 2.4 times that of the previous year. All other species—especially Alaska Reds—fell short; but the gain in Pinks brought an increase of 751,425 cases in the over-all total.

Abundance of Pinks in Southeast Alaska, Puget Sound and British Columbia in 1949 gave the total North American canned salmon pack a gain of three-quarters of a million cases or almost 12½% over the previous year, notwithstanding that all other species fell far below the 1948 levels. The total was still about 2½% below the average of the last ten years, and 3% short of 1947, though otherwise the largest since 1943.

Pink production, in sharp contrast to the previous year, reached the highest point in eight years, jumping 2,319,172 cases to almost 2½ times that of 1948 and some 22% above average; while Reds and Chums took a big drop.

Reds and Chums Short

Chums fell from the previous year's unusual abundance to the lowest ebb since 1931, reaching only 58% of the 1948 figure—less than a million cases for the fourth time in 36 years; the shortage being most marked in Alaska and British Columbia, though the Columbia River and coastal areas also canned much less than usual.

The Red species (including Sockeyes) made the smallest pack since 1935—and, with that exception, since the mid-1890's — although Puget Sound and British Columbia held up

1949—PACIFIC CANNED SALMON PACK—1949

	Alaska	Puget Sound	Columbia River	Coastal Areas	TOTAL U. S.	British Columbia	GRAND TOTAL (Full Cases)
Red or Sockeye							
1-Lb. Talls, Etc.*	813,911	11,538	....	....	825,449	....	....
½-Lb. and ¼-Lb. Flats†	146,677	80,589	‡6,630	7,577	241,473	....	....
Total	**960,588**	**§92,127**	**6,630**	**7,577**	**1,066,922**	**259,880**	**1,326,802**
Pink							
1-Lb. Talls, Etc.	2,628,336	459,305	....	....	3,087,641	....	....
½-Lb. Flats	54,706	97,811	....	....	152,517	....	....
Total	**2,683,042**	**557,116**	....	....	**3,240,158**	**709,217**	**3,949,375**
Chum or Keta							
1-Lb. Talls, Etc.*	485,354	152,358	12,339	6,040	656,091	....	....
½-Lb. Flats	22,955	5,174	47	245	28,421	....	....
Total	**508,309**	**§157,532**	**12,386**	**6,285**	**684,512**	**226,241**	**910,753**
Coho or Silver							
1-Lb. Talls, Etc.*	167,117	34,424	1,034	3,722	206,297	....	....
½-Lb. and ¼-Lb. Flats†	21,762	20,638	15,706	149	58,255	....	....
Total	**188,879**	**55,062**	**16,740**	**3,871**	**264,552**	**214,939**	**479,491**
Chinook or King							
1-Lb. Talls, Etc.*	28,961	4,092	19,631	419	53,103	....	....
½-Lb. and ¼-Lb. Flats†	21,272	4,502	113,716	827	140,317	....	....
Total	**50,233**	**8,594**	**133,347**	**1,246**	**193,420**	**21,065**	**214,485**
Steelhead							
1-Lb. Talls, Etc.*	....	....	1,624	....	1,624	....	....
½-Lb. and ¼-Lb. Flats†	....	....	7,395	40	7,435	....	....
Total	....	....	**9,019**	**40**	**9,059**	**2,381**	**11,440**
GRAND TOTAL, ALL SPECIES	**4,391,051**	**870,431**	**178,122**	**19,019**	**5,458,623**	**1,433,723**	**6,892,346**

See Footnotes on Following Page

NORTH AMERICAN CANNED SALMON PACK, 1917 TO 1949

YEAR	RED, SOCKEYE OR BLUBEACK	PINK	CHUM OR KETA	MEDIUM RED COHO OR SILVERSIDE	KING OR CHINOOK	STEELHEAD TROUT	TOTAL CASES	YEAR
1917	3,248,843	3,929,332	1,648,313	588,749	673,980	35,677	10,124,894	1917
1918	2,987,710	2,953,245	2,175,031	838,088	697,140	41,086	9,692,300	1918
1919	1,707,846	2,426,414	2,367,481	793,175	704,195	24,392	8,023,503	1919
1920	1,892,691	2,138,959	1,175,001	361,566	705,050	16,054	6,289,321	1920
1921	2,034,310	1,038,090	359,947	362,943	419,508	11,362	4,226,160	1921
1922	2,480,811	2,241,760	908,283	510,919	353,588	26,640	6,522,001	1922
1923	2,309,142	3,371,917	1,120,591	534,225	389,802	27,757	7,753,434	1923
1924	1,902,832	3,295,739	1,835,251	542,682	406,096	31,270	7,990,543	1924
1925	1,581,792	3,111,320	1,803,371	667,817	550,071	17,248	7,731,610	1925
1926	2,550,771	4,101,422	1,762,134	607,778	485,783	86,233	9,544,126	1926
1927	1,738,054	2,241,304	1,217,338	642,522	538,574	33,377	6,411,169	1927
1928	2,214,498	3,583,433	2,165,652	602,203	354,798	17,492	8,938,076	1928
1929	2,100,787	3,775,764	1,541,213	564,826	375,497	24,821	8,382,908	1929
1930	1,710,018	4,266,301	1,085,351	758,451	427,282	18,509	8,265,912	1930
1931	2,084,385	3,890,755	671,574	388,140	418,483	13,679	7,467,016	1931
1932	2,484,459	2,341,966	1,313,537	446,706	394,830	14,386	6,995,884	1932
1933	2,579,891	3,259,341	1,021,547	402,107	343,442	19,486	7,625,814	1933
1934	3,354,863	4,261,262	1,362,905	596,951	352,752	16,183	9,944,916	1934
1935	1,232,852	4,139,114	1,303,216	596,117	279,693	15,484	7,566,476	1935
1936	2,968,184	5,181,954	1,846,675	533,285	313,795	20,350	10,864,243	1936
1937	2,494,302	4,532,487	1,233,999	369,916	385,986	18,412	9,035,372	1937
1938	3,125,176	3,623,435	1,387,245	595,380	234,520	16,283	8,982,039	1938
1939	2,280,088	3,412,392	1,054,858	472,239	254,930	26,090	7,500,597	1939
1940	1,402,999	3,124,292	1,553,389	592,395	286,485	34,443	6,994,003	1940
1941	1,763,852	5,218,427	1,770,225	831,279	422,989	36,597	10,043,369	1941
1942	1,860,044	3,088,724	1,723,193	616,687	343,369	26,507	7,658,524	1942
1943	2,169,091	2,913,760	1,258,239	377,160	196,000	19,357	6,933,608	1943
1944	1,869,365	2,478,750	1,239,548	383.040	223,088	23,143	6,216,934	1944
1945	1,556,200	3,374,192	1,041,387	457,680	194,056	22,125	6,645,640	1945
1946	1,893,469	2,176,817	1,267,478	316,968	230,811	21,880	5,907,423	1946
1947	2,197,569	2.962,281	1,127,496	438,087	366,620	25,325	7,117,378	1947
1948	1,994,733	1,630,411	1,551,190	577,726	354,475	26,027	6,134,562	1948
1949	1,326,802	3,949,375	910,753	479,491	214,485	11,440	6,892,346	1949
Ten Year Avg.	**1,803,412**	**3,091,703**	**1,344,290**	**507,051**	**283,238**	**246,844**	**7,054,379**	**Ten Year Avg.**

Average figures are for last ten years. Statistics for earlier years will be found in previous numbers of the YEARBOOK.

Footnotes for Table on Preceding Page

‡Mostly Quinault River Bluebacks, canned on the Columbia River.

§At least 13,400 full cases of Alaska Reds, canned on Puget Sound, are included with the Sockeye pack, of which not more than 81,151 full cases were actually Puget Sound Sockeyes. The Puget Sound pack also included some Alaska and British Columbia Pinks and Chums; its Chum pack consisting largely of Canadian fish.

NOTE—All figures tabulated for canned salmon packs are on the basis of 48 *pounds* net to the case, for the sake of uniformity, though Halves are usually packed 4 dozen, and Quarters 8 dozen, to the case.

*With 1-lb. Talls are included limited quantities of 1-Lb. Flats of various species, as well as a few 1-lb. Ovals and 4-lb. cans—the latter 6 to the case. So few cans of these styles are now packed that their separate tabulation seems superfluous.

†Ovals and ¼-lb. cans are included with ½-lb. Flats. Only small quantities of these styles are canned, mostly on the Columbia River.

---

fairly well for an off year. The drop from the previous season's light Red output was 667,339 cases, and the pack fell to less than two-thirds of the recent average. Coho production fell 104,599 cases or 18% from 1948 to nearly 6% below average; while Kings, with a poor run on the Columbia, dropped 140,389 cases or 40% from the year before.

Red Shortage More Severe In United States Pack

United States production followed a similar general pattern, except that the shortage of Reds was intensified; a lamentable figure on Bristol Bay combined with scant packs elsewhere to make one of the poorest seasons on record for this species, about 35% below normal and 667,169 cases off from the previous year.

The bulge in Pinks, however, carried the U.S. total to a gain of 631,611 cases or 13% over 1948, though it fell considerably below 1947 and slightly below the ten-year average, which itself is far below that of the previous decade.

Puget Sound's "big-year" Pink run contributed over half a million cases (slightly less than in the cycle-year 1947), which just about balanced a serious shortage of Pinks (for the second consecutive season) in Central Alaska. The big—and altogether unexpected—increase in this species was in Southeast Alaska, which more than tripled its output of the two previous seasons and gave the United States 1,931,469 more cases of Pinks than in 1948—a gain of 147%. This total, however, was short of the all-time record of 1941 by 1,550,415 cases, and 6.2% below the average of the decade ending in that year.

Chums were short in all major districts, but especially in Southeast Alaska, where they slumped heavily from the previous year. The drop was due mainly to scanty runs, though market conditions also discouraged packing of this species. Puget Sound production, though again abnormally large through canning of Chums from British Columbia, was held down by price disagreements and light runs in both local and Canadian waters. The U.S. Chum total, though well in line with 1945-46-47, fell short of the big 1948 figure by 370,125 cases or 35%.

Cohoes dropped 106,058 cases or nearly 29% from the previous year's large pack and were nearly 12% short of average, with limited production in most districts and a large part of the catch sold fresh; the Puget Sound pack being sharply reduced. Alaska Kings held fairly well in line with recent years, but the Columbia River run was a failure and few Chinook's went into cans in the Puget Sound and coastal areas.

Air view of the central southern portions of Ketchikan, Alaska—from the Ketchikan Packing Co. cannery (waterfront at left) to the New England Fish Co. and Fidalgo Island Packing Co. plants (at extreme right). Ketchikan Cold Storage Co. dock is near the center, just to left of Alaska Steamship Co. dock.

UNITED STATES CANNED SALMON PACK—1918 TO 1949

YEAR	Red or Sockeye	Pink	Chum or Keta	Medium Red Coho or Silverside	King or Chinook	Steelhead	Grand Total	YEAR
1918	2,711,251	2,425,500	1,677,416	647,020	589,786	25,170	**8,076,143**	1918
1919	1,338,401	2,079,775	1,995,446	593,182	664.844	19,899	**6,630,347**	1919
1920	1,541,286	1,618.103	1,090,103	251,533	586,749	13,659	**5,101,705**	1920
1921	1,870,396	845,184	288,539	238,595	369,756	10,142	**3,622,612**	1921
1922	2,181,197	1,659,781	650,079	491,643	313,992	24,983	**5,231,675**	1922
1923	1,974,495	2,930,985	702,536	415,084	362,660	25,997	**6,411,757**	1923
1924	1,533,237	2,619,013	1,266,654	418,336	378,218	29,862	**6,245,320**	1924
1925	1,187,784	2,659,144	1,214,304	477,159	481,071	14,859	**6 034,321**	1925
1926	2,218 638	3,334,787	1,067,053	429,942	408,136	33,128	**7,491,634**	1926
1927	1,430,116	1,993,679	656,911	459,209	481,914	31,643	**5,053,472**	1927
1928	2.010,956	2,791,061	1,302,422	445,496	335,907	16,605	**6,902,447**	1928
1929	1,819,469	3,298,127	1,115,924	367,847	358,085	24,104	**6,983,556**	1929
1930	1,232,340	3,154,364	683,451	566,250	390,756	16,932	**6,044,093**	1930
1931	1,792,111	3,684,092	615,441	285,930	390,563	12,355	**6,780,492**	1931
1932	2 200,104	2,118,250	1,006,776	257,735	318,770	13,218	**5,914,853**	1932
1933	2,321,784	2,726,783	727,917	243,055	323,176	18,027	**6,360,742**	1933
1934	2,876,981	3,825,898	849,721	371,521	322,968	14,901	**8,361,990**	1934
1935	882,408	3,624,148	893,612	364,625	257,773	14,888	**6,037,454**	1935
1936	2,553,160	4,590,422	1,249,188	287,224	283,941	19,282	**8,983,217**	1936
1937	2,168,528	3,947,271	786,397	236,708	369,725	17,568	**7 526,197**	1937
1938	2,677,723	3,222,559	845,433	294,257	218,989	15,248	**7,274,209**	1938
1939	2,020,200	2,791,790	668,274	227,143	238,827	25,293	**5,971,527**	1939
1940	1,040,241	2,910,972	919,368	375,668	269,217	33,436	**5,548,902**	1940
1941	1,308,740	4,790,573	851,902	440,653	372,624	33,162	**7,779,654**	1941
1942	1,194,985	2,819,501	1,089,555	406,032	320,531	21,911	**5,852,515**	1942
1943	2,004,204	2,384,186	895,265	191,135	185,340	16,261	**5,676,391**	1943
1944	1 618,729	2,087,621	987,382	202,364	203,761	19,222	**5,119,079**	1944
1945	1,227,162	2,549,848	693,803	239,086	181,367	19,314	**4,910,580**	1945
1946	1,350,629	2,060.243	694,728	217,004	222,744	17,767	**4,563,115**	1946
1947	1,911,284	2,363,069	666,497	293,058	356,665	22,091	**5,612.664**	1947
1948	1,734,091	1,308,689	1,054,637	370,610	338,037	20,362	**4,826,426**	1948
1949	1,066,922	3,240,158	684,512	264,552	193,420	9,059	**5,458,623**	1949
Average	**1,445.699**	**2.651.486**	**853.765**	**300.016**	**264.371**	**21.258**	5.534.795	**Average**

"Average" is for last ten years.

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LOOK TO LIBBY'S FOR PERFECTION

Alaska's salmon output increased substantially over 1948, despite smaller production of all species except Pinks, the pack of which was more than doubled. Southeast Alaska's big Pink run and extreme shortage of Reds on Bristol Bay were outstanding features of the season.

1949—RECAPITULATION OF ALASKA CANNED SALMON PACK—1949

	RED or SOCKEYE				PINK			CHUM				MEDIUM RED or COHO			KING OR CHINOOK			Grand
District	1-lb. Talls	1-lb. & 4-lb. Flats	½-lb. Flats (8 doz.)	Total	1-lb. Talls	½-lb. Flats (8 doz.)	Total	1-lb. Talls	1-lb. & 4-lb. Flats	½-lb. Flats (8 doz.)	Total	1-lb. Talls	½-lb. Flats (8 doz.)	Total	1-Lb. Talls & Flats	½-Lb. Flats (8 doz.)	Total	Total (Full Cases)
Western Alaska	497,080	15,268	17,511	529,859	....	....	....	35,217	8,004	919	44,140	4,314	97	4,411	* 2,985	8,989	11,974	590,384
Central Alaska	276,740	9,012	105,492	391,244	564,351	16,087	580,438	202,446	247	18,396	221,089	* 55,847	3,562	59,409	*25,022	12,191	37,213	1,289,393
Southeast Alaska	15,092	† 719	23,674	39,485	†2,063,985	38,619	2,102,604	239,423	† 17	3,640	243,080	†106,956	18,103	125,059	954	92	1,046	2,511,274
Total	**788,912**	**24,999**	**146,677**	**960,588**	**2,628,336**	**54,706**	**2,683,042**	**477,086**	**8,268**	**22,955**	**508,309**	**167,117**	**21,762**	**188,879**	**28,961**	**21,272**	**50,233**	**4,391,051**

*1-Lb. Flats are included with Talls as follows: Western Alaska, 442 cases Kings; Central Alaska, 2,007 cases Cohoes, and 358 Kings.

†All Southeast Alaska Reds and Chums tabulated as 1-Lb. Flats are in 4-lb. cans; other 4-lb. cans in the Southeast Alaska pack included with 1-Lb. Talls, are 46 cases of Pinks (6 cans to the case) and 15 cases of Cohoes.

Only Southeast Alaska's amazing Pink run in 1949 saved the territory from an all-round pack failure. Light runs of other species—and of Pinks in most districts—combined with a general curtailment of fishing seasons, resulted in subnormal production in nearly all areas; and the total of Reds, Chums and Cohoes fell below that of 1948 by about a million cases.

The increased Pink pack, however, brought a net gain in the grand total of 380,439 cases or almost 9½%. This over-all total, though the largest since 1944, was relatively small: it was some 10% below the ten-year average, and little more than half the record pack of 1936.

Pinks Up; Reds Way Down

The Pink pack was more than doubled—an increase of 1,378,998 cases over the previous year—despite the fact that the only increase outside of Southeast Alaska was in the Prince William Sound and South Peninsula areas, and even they were below normal. Kodiak was especially disappointing; and the total of Pinks for all points west of Cape Spencer took a drop of 39,634 cases from 1948.

Greatest shortage was in Reds, which fell below a million cases for the first time since 1942 and the fifth time in 50 years; dropping 664,099 cases or 40% from the previous year. The year's decline in Western Alaska was 747,649 cases or 58.6%. Kodiak also was down, while Reds made substantial gains on Cook Inlet and Copper River.

Chums and Cohoes Also Short

Chums fell off in every area but Prince William Sound, making a total 266,352 cases or 34.4% below that of 1948 and 32% below average, though slightly ahead of 1947. The decline was greatest in Southeast Alaska, but was considerable in Western Alaska also, while Kodiak held above normal.

Cohoes also went down from the previous year's high figure by 52,920 cases or 21.8%, to about 15% below average — but some 40,000 cases above 1947. This species gained slightly in the Prince William Sound and Kodiak areas, but fell seriously short on the Copper River. Kings, with principal production on Cook Inlet, dropped 4,412 cases from 1948, but continued well above the recent average for the third consecutive year; the drop being mostly in Southeast Alaska, while Copper River made a slight gain.

As a factor in Alaska's total, Pinks advanced from 32.6% to over 61%, while Reds fell from 41% to 21.9%; Chums from 19.3% to 11.6%; Cohoes from 6% to 4.3%.

By districts, Western Alaska declined not only in Reds but in all other varieties, cutting its total by 790,504 cases to about 43% of its 1948 total. Its only smaller packs since 1899 were in 1942, 1940, 1935 and 1930.

Central Alaska, with a fair gain in Reds and Kings but sharp drops in Pinks, Chums and Cohoes, made its smallest total in 24 years, falling below 1948 by 42,077 cases or 3%.

SINCE 1895

KELLEY-CLARKE COMPANY

AMERICAN BUILDING • SEATTLE 4

Selling Agents

ALL VARIETIES

CANNED SALMON

▼

HAWAIIAN TUNA

1949—WESTERN ALASKA CANNED SALMON PACK—1949

	Company	Cannery Location	RED			CHUM	COHO	KING or CHINOOK				
			1-lb. Talls-Flats	½-lb. Flats (8 doz.)	Total	1-lb. Talls	1-lb. Talls	1-lb. Talls	½-lb. Flats	Total	Grand Total (Full Cases)	
1	Alaska Packers Assn.	Nushagak	16,198		16,198	4,923	21	345		345	21,487	1
		Naknek	54,577		54,577	794		32		32	55,403	
		Kuichak	44,947		44,947	2,127		833		833	47,907	
		Egegik	31,265		31,265	662	5	7		7	31,939	
		Ugashik	18,609		18,609	1,158		8		8	19,775	
2	Bering Trading Co.	Alakanuk							4,000	4,000	4,000	2
3	Bristol Bay Packing Co.	Dillingham	2,611	4,626	7,237	2,279	10	224	265	489	10,015	3
		Pederson Point	29,306		29,306	(c) 8,499					37,805	
4	Columbia Rivers Packers Assoc.	Nushagak	5,221	2,750	7,971	2,919	8	236		236	11,134	4
		Naknek	28,053		28,053						28,053	
5	Egegik Packing Co.	Egegik	16,796	2,711	19,507	378	538				20,423	5
6	Intercoastal Packing Co.	Naknek	19,827		19,827	440		21		21	20,288	6
7	Libby, McNeill & Libby	Ekuk, Koggiung and Egegik	93,456		93,456	5,852	23	351		351	99,682	7
8	Nakat Packing Corporation	Nakeen	28,084		28,084	1,327		221		221	29,632	8
9	Northern Commercial Co.	Kwiguk						(e) 442	2,778	3,220	3,220	9
10	Pacific American Fisheries, Inc.	Nushagak, Naknek, Pt. Moller (a)	(b) 40,788	5,179	45,967	(c) 8,573	2,357	103	1,945	2,048	58,945	10
11	Peninsula Packers	Port Moller	16,927		16,927	1,354	11	90		90	18,382	11
12	Queen Fisheries, Inc.	Nushagak and Naknek (fl.)	2,524		2,524	1,290	1,341	37		37	5,192	12
13	Red Salmon Co.	Naknek	44,549		44,549	479		26		26	45,054	13
14	L. G. Wingard Packing Co.	Ugashik	15,578		15,578	965		9		9	16,552	14
15	Win-Ra Fisheries, Inc.	Ugashik	3,032	2,245	5,277	(c) 121	(d) 97		1	1	5,496	15
	Total		512,348	17,511	529,859	44,140	4,411	2,985	8,989	11,974	590,384	

NOTE—Joint operations, from which shares of the packs are credited in this tabulation to the respective companies, were conducted as follows:

Alaska Packers Association and Libby, McNeill & Libby, in Egegik plant of Alaska Packers Association; Alaska Packers Association, L. G. Wingard Packing Co. and Win-Ra Fisheries, Inc., in Ugashik plant of L. G. Wingard Packing Co.; Columbia River Packers Association, Inc., and Intercoastal Packing Co., in Naknek plant of Columbia River Packers Association.

(a) Packs of Pacific American Fisheries, Inc., are shown in detail on another page of this issue. (b) Includes 15,268 cases in 1-lb. Flats; all other figures in this column are Talls. (c) Included with Chum Talls are 8,004 cases of 1-lb. Flats in Bristol Bay Packing Co.'s Pederson Pt. plant; 798 full cases ½-lb. Flats in Pacific American pack, and 121 full cases ½-lb. Flats in Win-Ra Fisheries pack. (d) Halves, full cases. (e) 1-lb. Flats.

With an "off-year" in the Red cycle, little was expected on BRISTOL BAY, and the results were even below expectations; the season being one of the poorest in history. Operations were greatly curtailed, the number of active lines being cut from 59 to 32, and fishing time was sharply restricted as the season advanced. Number of fishing boats was reduced by 30%, and at that considerably exceeded the official recommendation; though the number of set-nets increased by nearly 16%.

Reds comprised 91.6% of the total pack—slightly less than the normal proportion. The Red output was only 43.2% of the previous year's, and 35% below average, with a drop of 688,189 cases from 1948. It was the smallest in seven years, though a little larger than in 1942, 1940, 1935 or 1930.

Other species also declined. No Pinks were canned, and Chums, though within 7,700 cases of the average figure, dropped 31,483 cases to about half the 1948 figure. Bristol Bay and Yukon Kings held very close to the high mark of the two previous seasons, almost 40% above average.

Red Run Dwindles

Fish were scarce from the start, and the run, instead of building up in the second week, slacked off rapidly; less than 35,000 cases being canned after mid-July. The one bright spot was the Egegik, which came within 12,000 cases of its fine record of the previous year. The Nushagak was especially poor, with less than 30% of its usual production; and the Kvichak was not much better, though the Naknek and Ugashik were not so far below normal. There was a little fall packing, mostly of Cohoes, in the Egegik and Nushagak sectors, as well as at Port Moller.

Fish prices continued on the same basis as in 1948 except for Kings, which were boosted from $1.50 to $1.70 each: Reds and Cohoes remaining at 32c each; Chums 18c, with a hypothetical 10c for Pinks.

Highly maneuverable, shoal-draft, 32' utility boat, a 1949 addition to Alaska Packers Association's Karluk cannery. Twin 165-hp. Gray engines give her a speed of 26 knots. Laurence Freeburn, superintendent, at the wheel.

GILLNETTERS BEST
SALMON
UNION FISHERMENS CO-OPERATIVE PACKING CO
ASTORIA OREGON
GILLNETTERS BEST
SALMON
PACKED BY
UNION FISHERMENS CO-OPERATIVE PACKING CO.
FINEST QUALITY
GILLNETTERS BEST
FANCY
TUNA
PACKED IN SOYBEAN OIL
SALT ADDED
CONTENTS 3½ OZ. AVOIR.

UNION FISHERMEN'S CO-OPERATIVE
PACKING COMPANY
ASTORIA, OREGON

WEEKLY ALASKA CANNED SALMON PACKS

Dates	Weekly Packs	Cumulative Totals
To June 25, 1949		
June 26, 1948		156,987
June 28, 1947		267,564
June 29, 1946		204,255
June 26—July 2, 1949	271,100	443,046
June 27—July 3, 1948	514,912	671,899
June 29—July 5, 1947	704,521	972,085
June 30—July 6, 1946	267,830	472,085
July 3—9, 1949	233,862	676,908
July 4—10, 1948	552,941	1,224,840
July 6—12, 1947	502,206	1,474,291
July 7—13, 1946	322,850	794,935
July 10—16, 1949	227,319	904,227
July 11—17, 1948	360,957	1,585,797
July 13—19, 1947	544,041	2,018,332
July 14—20, 1946	272,891	1,067,826
July 17—23, 1949	303,531	1,207,758
July 18—24, 1948	417,003	2,002,800
July 20—26, 1947	392,461	2,410,793
July 21—27, 1946	384,132	1,451,958
July 24—30, 1949	216,936	1,424,694
July 25—31, 1948	309,942	2,312,742
July 27—August 2, 1947	374,582	2,785,375
July 28—August 3, 1946	375,788	1,827,746
July 31—August 6, 1949	312,970	1,737,664
August 1—7, 1948	269,422	2,582,164
August 3—9, 1947	471,825	3,257,200
August 4—10, 1946	548,005	2,375,751

Dates	Weekly Packs	Cumulative Totals
August 7—13, 1949	131,367	1,869,031
August 8—14, 1948	261,383	2,843,547
August 10—16, 1947	131,697	3,388,897
August 11—17, 1946	315,176	2,690,927
August 14—20, 1949	388,191	2,257,222
August 15—21, 1948	59,418	2,902,965
August 17—23, 1947	272,653	3,661,550
August 18—24, 1946	116,125	2,807,052
August 21—27, 1949	632,115	2,889,337
August 22—28, 1948	399,588	3,302,553
August 24—30, 1947	298,523	3,960,073
August 25—31, 1946	231,228	3,038,280
August 28—September 3, 1949	742,442	3,631,779
August 29—September 4, 1948	446,294	3,748,847
August 31—September 6, 1947	245,133	4,205,206
September 1—September 7, 1946	417,455	3,455,735
September 4—10, 1949	585,924	4,217,703
September 5—11, 1948	164,194	3,913,041
September 7—13, 1947	48,669	4,253,875
September 8—14, 1946	359,643	3,815,378
September 11—17, 1949	89,074	4,306,777
September 12—18, 1948	20,359	3,933,400
September 14—20, 1947	22,849	4,276,724
September 15—21, 1946	60,460	3,875,838
Later*, 1949	68,370†	4,375,147
Later*, 1948	32,926	3,966,326
Later*, 1947	35,731	4,312,455
Later*, 1946	84,772	3,960,610

* "Later" figures cover all salmon canned for the year after the dates indicated.

† The increase after Sept. 17, 1949, is partly due to corrections in earlier figures.

All data based on weekly reports to U. S. Fish & Wildlife Service.

Pack of Canned Salmon in Alaska, 1896 to 1949, by Species

Salmon canning in Alaska commenced in 1878, but no segregation of the packs by species is available prior to 1896; while the valuations were not recorded prior to 1905. Earlier total packs, starting with 8,159 cases in 1878, ranged from 6,539 cases in 1880 to a peak of 801,400 in 1891; the output in 1895 being 626,530 cases. The average from the beginning through 1895 was 291,973 cases.

The Average'' figures at bottom of table are for the last ten years. Values are based on opening prices, or on prices at which the bulk of the packs were sold.

YEAR	RED, SOCKEYE		PINK		CHUM		COHO		KING		TOTAL		YEAR
	Cases	Value	Cases	Value	Cases	Value	Cases	Value	Cases	Value	Cases	Value	
1896	806,010		111,986		452		37,017		11,242		966,707		1896
1897	688,581		157,711		1,396		43,557		17,833		909,070		1897
1898	782,941		109,399		5,184		54,711		12,862		965,097		1898
1899	864,254		149,159		1,931		39,402		23,400		1,078,146		1899
1900	1,197,406		232,022		30,012		50,984		37,715		1,548,139		1900
1901	1,319,335		541,427		47,464		65,509		43,069		2,016,804		1901
1902	1,685,546		549,602		159,849		82,723		59,104		2,536,824		1902
1903	1,687,244		355,799		35,052		120,506		47,609		2,246,210		1903
1904	1,505,548		299,333		21,178		85,741		41,956		1,953,756		1904
1905	1,574,428	$5,335,547	168,579	$498,194	41,972	$113,056	67,394	$215,875	42,125	$141,999	1,894,516	$6,304,671	1905
1906	1,475,961	5,620,875	348,875	1,046,951	254,812	730,235	109,141	382,109	30,834	116,222	2,219,044	7,896,392	1906
1907	1,295,113	5,915,227	561,973	1,799,290	184,173	547,757	85,190	337,384	43,424	181,718	2,169,873	8,781,366	1907
1908	1,651,770	7,524,251	644,133	1,733,379	218,513	554,197	68,827	274,089	23,730	99,867	2,606,973	10,185,783	1908
1909	1,705,302	7,610,550	464,873	1,114,839	120,712	274,110	56,556	231,029	48,034	207,624	2,305,477	9,438,151	1909
1910	1,450,267	7,774,390	554,322	1,764,055	254,218	773,409	114,026	559,666	40,221	214,802	2,413,054	11,086,322	1910
1911	1,320,705	8,552,512	1,021,356	4,493,966	303,823	1,215,692	120,704	752,283	45,378	363,024	2,820,966	16,198,833	1911
1912	1,904,258	10,776,987	1,303,365	3,410,928	638,528	1,600,444	170,384	791,023	52,594	310,847	4,060,129	16,890,229	1912
1913	1,964,379	9,136,616	1,402,916	3,687,446	267,654	623,424	77,377	271,078	34,167	140,914	3,746,914	13,859,478	1913
1914	2,201,574	12,482,110	997,823	3,600,075	662,478	2,260,614	157,792	735,219	48,165	281,924	4,067,832	19,719,942	1914
1915	1,922,296	11,907,202	1,870,373	5,619,436	484,408	1,356,469	126,570	588,903	85,694	458,000	4,489,341	19,930,010	1915
1916	2,119,442	13,147,994	1,753,546	6,446,168	715,238	2,434,627	265,184	1,430,143	66,179	364,496	4,919,589	23,823,428	1916
1917	2,484,881	29,058,778	2,298,466	15,120,419	877,713	5,375,713	193,708	1,634,600	67,552	660,868	5,922,320	51,850,017	1917
1918	2,618,559	25,313,837	2,418,212	16,142,604	1,366,859	8,756,598	216,572	2,068,784	57,367	596,000	6,677,569	52,877,823	1918
1919	1,265,543	17,143,017	1,657,434	14,982,542	1,348,462	9,450,772	230,229	2,809,310	90,533	1,131,662	4,592,201	45,552,714	1919
1920	1,475,780	19,851,816	1,613,434	9,751,845	1,022,708	4,712,575	192,311	1,579,963	91,276	1,154,013	4,395,509	37,050,212	1920
1921	1,758,794	16,539,177	440,471	1,938,263	247,606	990,424	109,783	649,480	48,319	352,699	2,604,699	20,470,043	1921
1922	2,075,397	19,719,158	1,657,556	7,709,011	562,496	2,369,396	174,312	949,312	31,604	258,799	4,501,428	31,006,027	1922
1923	1,878,330	17,727,572	2,455,136	12,337,580	527,145	2,542,759	163,752	957,439	38,977	344,078	5,063,340	33,909,428	1923
1924	1,449,724	14,840,946	2,613,068	13,191,793	1,027,183	4,931,172	182,207	1,312,969	33,741	304,809	5,305,923	34,581,689	1924
1925	1,065,290	15,243,243	2,105,240	11,473,271	1,065,395	4,701,847	164,199	1,702,243	50,774	682,235	4,450,898	33,802,839	1925
1926	2,157,087	21,328,739	3,338,349	17,987,527	902,443	4,518,929	202,527	1,700,563	52,476	544,247	6,652,882	46,080,005	1926
1927	1,320,563	16,880,670	1,414,756	8,638,551	507,641	2,761,638	252,629	2,307,569	70,438	853,100	3,566,072	31,441,534	1927
1928	1,944,061	18,902,050	2,785,464	18,512,649	991,504	564,567	297,886	2,140,685	51,195	505,017	6,070,110	45,624,968	1928
1929	1,693,050	19,388,299	2,570,506	15,551,647	860,876	4,659,754	172,070	1,302,887	73,740	769,869	5,370,242	41,672,456	1929
1930	848,787	11,172,854	3,150,652	12,773,894	596,000	2,162,306	329,988	3,011,505	63,560	764,254	4,988,987	29,884,813	1930
1931	1,695,782	16,161,532	2,978,512	10,226,769	536,909	1,726,203	170,208	1,119,332	51,124	462,800	5,432,535	29,696,636	1931
1932	2,104,727	10,803,982	2,116,573	6,368,695	821,128	2,301,408	149,351	606,798	68,709	368,522	5,260,488	20,449,405	1932
1933	2,182,371	14,649,771	2,183,443	10,498,358	658,245	3,028,584	161,633	884,276	41,006	345,310	5,226,698	29,406,294	1933
1934	2,626,002	17,687,617	3,822,602	15,349,445	735,055	2,651,538	235,560	1,197,000	51,367	155,230	7,470,586	37,040,830	1934
1935	823,175	7,216,754	3,254,528	13,767,517	852,730	3,414,160	188,918	1,263,479	36,475	348,024	5,155,826	26,009,934	1935
1936	2,482,555	19,648,482	4,589,270	18,430,508	1,106,983	4,094,532	218,232	1,453,566	57,908	452,125	8,454,948	44,079,213	1936
1937	2,101,154	21,590,206	3,619,298	18,151,343	729,114	3,507,933	135,078	1,096,905	69,394	682,031	6,654,038	45,028,418	1937
1938	2,523,123	19,663,910	3,222,104	12,350,571	786,859	2,848,266	216,732	1,342,715	42,726	341,788	6,791,544	36,547,250	1938
1939	1,971,338	18,560,539	2,509,519	12,656,697	626,412	2,905,286	103,156	708,013	28,036	280,036	5,239,211	35,110,571	1939
1940	953,381	9,402,841	2,908,025	15,770,772	860,539	4,312,766	284,130	2,122,330	22,303	219,742	5,028,378	31,828,451	1940
1941	1,164,888	15,952,391	4,636,649	32,593,271	710,507	4,844,060	356,213	3,595,982	38,246	480,998	6,906,503	57,466,702	1941
1942	912,006	13,804,764	2,818,650	22,565,374	942,789	7,178,696	372,537	4,442,108	43,127	686,567	5,089,109	48,677,509	1942
1943	1,982,175	30,381,755	2,322,057	18,701,467	882,578	6,755,829	158,734	1,937,981	50,965	802,162	5,396,509	58,579,194	1943
1944	1,580,757	24,254,327	2,087,322	16,924,966	985,725	7,565,526	187,053	2,278,938	36,939	584,787	4,877,796	51,608,544	1944
1945	1,173,356	18,260,328	2,239,282	18,201,352	688,485	5,312,578	195,860	2,078,066	41,709	676,640	4,338,692	44,528,964	1945
1946	1,065,898	22,880,873	2,057,121	24,685,452	617,155	7,120,923	193,061	3,231,992	37,874	748,321	3,971,109	58,667,561	1946
1947	1,876,239	45,390,823	1,723,617	32,269,419	500,211	8,983,297	148,715	3,522,434	53,684	1,131,912	4,302,466	91,297,885	1947
1948	1,635,463	44,994,233	1,304,044	31,617,066	774,661	16,345,475	241,799	6,278,595	54,645	1,459,245	4,010,612	100,694,614	1948
1949	960,588	25,581,995	2,683,042	44,147,496	508,309	7,498,382	188,879	3,781,482	50,233	1,402,934	4,391,051	82,412,289	1949
Avg.	**1,330,475**	**25,090,433**	**2,477,981**	**25,747,663**	**747,096**	**7,591,753**	**232,698**	**3,326,991**	**42,972**	**819,331**	**4,831,465**	**62,576,171**	**Avg.**

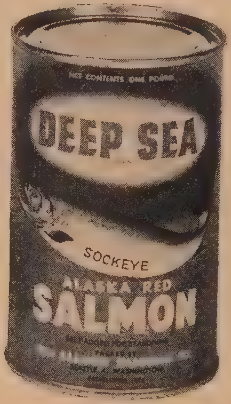
Canning and Selling Salmon for Sixty Years

Red Salmon Co.

NAKNEK, BRISTOL BAY,
ALASKA

Packing

RED ALASKA SOCKEYE, ALASKA KING and ALASKA CHUM SALMON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SOCKEYE
ALASKA RED
SALMON

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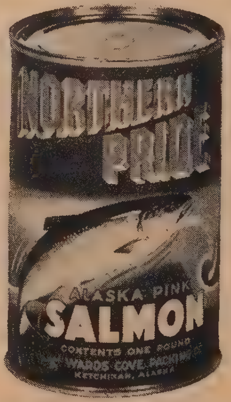
Beegle Packing Co.

KETCHIKAN, ALASKA

Packing

RED ALASKA SOCKEYE, ALASKA COHO, PINK and CHUM SALMON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KETCHIKAN, ALASKA

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SEATTLE, WASHINGTON

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"ROYAL CLUB" BRAND—Alaska Pink Salmon.
"JACK FROST" BRAND—Alaska Red Salmon and Albacore Tuna Flakes.
"PIRATE" BRAND—Alaska Chum Salmon and Grated Albacore Tuna.

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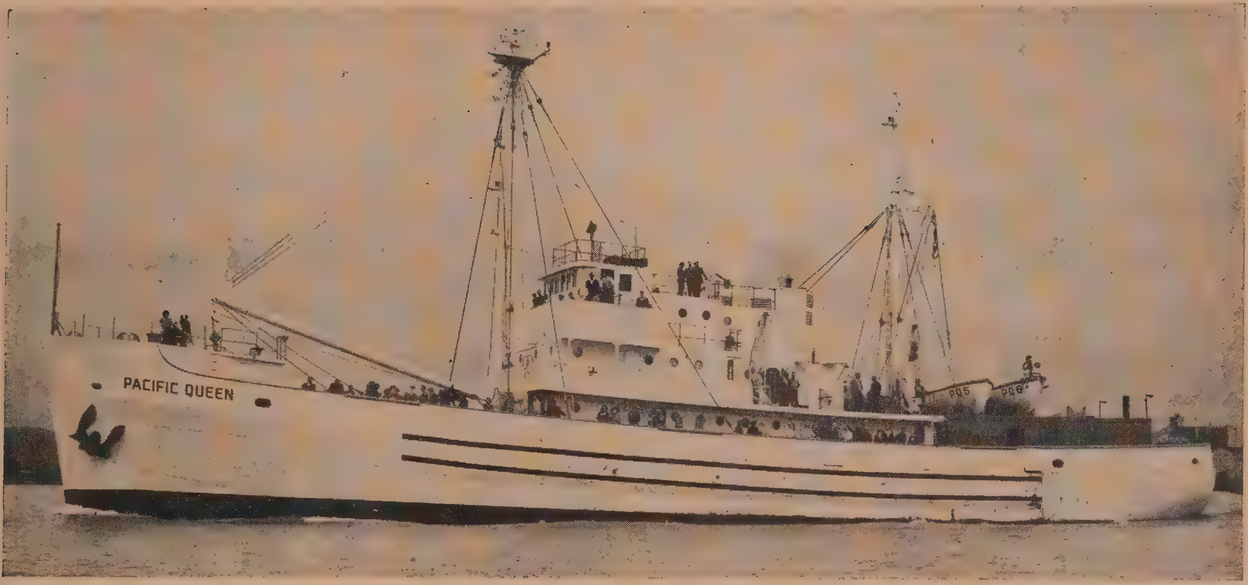

Freezerships, freezing fresh-caught salmon in Alaska for canning on Puget Sound or elsewhere, have lately become a factor in Bristol Bay operations. *Pacific Queen*, which entered this field in 1949, was formerly an Army salvage vessel; is 185′ long, equipped with four air-blast freezers, and carries seven Bristol Bay gillnet boats.

More Salmon Frozen

Other operations than canning increased considerably, with eight outfits recorded as engaged in freezing, salting, etc.; a notable newcomer being the freezership *Pacific Queen*, operated by Tacoma interests — a 185′ converted Army vessel, carrying seven gillnet boats and equipped with four air-blast freezers.

Another was the *Southern Queen* from Tacoma, which operated at several Bristol Bay points; and the *Reefer King* from Seattle, in her second season. These vessels froze their catches, which were canned on Puget Sound. In addition there was the converted mine-sweeper *Eva* from Ilwaco on the Columbia River, which put up a small pack of hard-salted and mild cured salmon; and four small salting and mild curing operations on shore in the Nushagak section.

In view of the light run these operations had rather disappointing results, though such processing absorbed nearly 3% of the entire catch, which if canned would have added perhaps as much as 17,000 cases to Bristol Bay's pack: and more than 13,000 cases of Bristol Bay Reds were actually reported canned on Puget Sound.

With continued poor prospects for 1950, the year closed with proposals for a further curtailment of about 40% in fishing effort.

PORT MOLLER in the North Peninsula area hit a record low, contributing only 16,681 cases to the Western Alaska total, with less than one-fourth of its big 1948 pack. Its Red shortage was even greater, the pack being less than 10,000 cases—15% of the previous year's, and 30½% of average; while Chums fell off 12,661 cases or over 70%. Total of other species was less than 2,000 cases, which was more than usual.

DATA ON BRISTOL BAY OPERATIONS

YEAR	Number of Canneries Operated	Canning Lines in Operation	Number of Other Operations	Total Boats Fishing Salmon	Total Set Nets Fishing	Total Fathoms of Gear Operated	Number of Salmon Caught	Canned Salmon Pack (Full Cases)	Number of Salmon Used for Other Purposes than Canning (or Shipped Uncanned)	YEAR
1930.....	25	114	4	868	113	168,975	4,405,378	405,892	62,334	1930
1935.....	8	15½	3	181	169	35,600	3,116,493	245,047	75,140	1935
1936.....	23	91	8	1,102	410	170,900	21,051,695	1,450,856	164,996	1936
1937.....	22	83	7	1,086	313	166,750	21,282,098	1,459,450	107,068	1937
1938.....	17	67	....	1,006	189	160,350	25,295,927	1,834,436	(None)	1938
1939.....	22	96	2	1,219	268	196,250	14,300,806	1,154,921	7,644	1939
1940.....	8	36	11	503	233	87,100	5,318,481	446,513	136,507	1940
1941.....	16	50	3	791	225	129,900	6,958,140	642,977	30,472	1941
1942.....	6	12	....	224	65	36,850	6,732,502	469,024	(None)	1942
1943.....	11	33	....	633	158	102,850	17,749,837	1,320,286	(None)	1943
1944.....	12	35	1	655	187	106,780	11,957,230	982,802	8,840	1944
1945.....	8	17	7	316	207	58,250	7,978,607	644,072	68,546	1945
1946.....	16	42	11	777	215	126,150	8,406,905	682,180	175,951	1946
1947.....	17	49	7	928	340	142,064	18,937,386	1,376,722	130,655	1947
1948.....	20	59	2	1,053	403	178,730	15,156,876	1,316,168	66,492	1948
1949.....	19	32	8	731	467	132,115	6,805,568	563,020	202,415	1949

NOTE:—Data in this table compiled by U. S. Fish & Wildlife Service. Figures for boats and gear include those used in connection with salteries and freezers.
The data are for the Bristol Bay area, including the Nushagak, Kvichak, Naknek, Egegik and Ugashik sections, but **not** the Yukon-Kuskokwim, Port Heiden, Herendeen Bay nor Port Moller districts.

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PINK
SALMON

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SALMON
CENTRAL ALASKA

Port Ashton, Prince William Sound, Alaska, showing salmon cannery and herring reduction plant of the Port Ashton Packing Corporation.

More Reds on Peninsula

The South Peninsula area, whose 1948 season went down as "the worst in history," made an even poorer showing last year, when the season opened with an exceptionally violent storm and Chum fishing was curtailed by closing a week earlier than before. There was also considerable curtailment of major operations, though delay from labor controversy was less serious than the year before.

The Red pack, however, was more than double the small 1948 output, coming within about 5,000 cases of the recent average; and Pinks gained 3692 cases or 5½%, but fell about one-fourth below normal. The decrease was in Chums, which made the smallest pack on record—only 45% of the previous year's, and less than one-third the normal of earlier times. This brought the area's total down 17,732 cases or 10% below the previous year's low mark.

At Chignik, also, Reds gained 20,473 cases or 61% over 1948, though they reached only about one-third of the 1947 figure and were 16% below average. Very few Pinks were canned—about 1/12 of the previous year's pack — and Chums fell to 36% of the high-record 1948 output. This gave a total shortage of 42,502 cases or 38% from the previous year, 35½% short of average.

The season opened ten days later than the traditional June 1, but owing to the light run was closed about three weeks of the main Red season; and the canneries finally shut down in late August, after several weeks of scratch fishing.

Kodiak Falls Down

Karluk and Red River districts of the Kodiak area officially opened a few days earlier than the year before, but the first nine days of the season were lost in price controversy, which was not settled till mid-June. Then the main Red run, and later that of Pinks also, turned out a dismal failure; and Chums also fell off sharply from the big 1948 pack, though far ahead of 1947 and somewhat above average.

This brought the season's total to the lowest point in modern times, down 152,217 cases or 30% from the previous year, and only 57% of the 1947 total. The Pink pack, with the run slacking off badly before the close, was the smallest on record, off 95,169 cases or 31.4% from 1948 and less than 40% of the cycle-year output of 1947. Reds dropped 28,223 cases or nearly 30% but were slightly ahead of 1946; while the year's decline in Chums was 30,469 cases or 32.4%.

Practically nothing was done after the summer closure Aug. 13, and the all-round failure led to proposal that the 1950 season be limited to 11 fishing days, eliminating all June and July operations.

Kodiak fish prices were boosted to 66c each for Reds (up 6c); 21c for Pinks; 27c for Chums; 60c for Cohoes and $2 for Kings.

Cook Inlet Reds Increase

Cook Inlet's total, though less than the previous year's high figure by 56,093 cases or 18%, was well in *canned* **S** *almon*

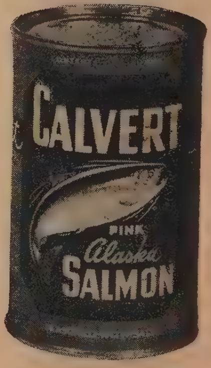
from the **H** *eight of the run*

handled **I** *ntelligently*

by people of **E** *xperience*

with profound **L** *oyalty to customers*

SAN JUAN
ALASKA RED
SALMON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PINK
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ALASKA CHUM
SALMON

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SEATTLE 1, WASHINGTON

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SAN JUAN FISHING & PACKING CO.

line with the recent average; while Reds jumped to about 22½% above average, with a gain of 29,762 cases over 1948, making the largest pack in ten years. For Pinks, however, it was a very poor off-year, with the smallest pack since 1933: this species falling to about 16% of the 1948 pack and 40% of the cycle-year 1947, and 10% of the 1940 record.

Chums also fell about 20% below normal, being 22,924 cases or 40% below 1948, with the smallest pack since 1939; and Cohoes made an unusually poor showing, with a drop of 5,331 cases or 18%. Kings again made an excellent showing for the third successive year, though they dropped 1901 cases from 1948.

This relatively good showing was made in spite of several handicaps. The weekly closed time was increased by 12 hours, and this area again suffered from labor trouble.

One of over a dozen Grandy-built jitney seiners built in 1949 for various Kodiak-area packers. All on similar lines, they range in length from 34′ to 40′. All are powered with Chrysler Royal engines, with reduction gear and power takeoff.

Some Improvement On Prince William Sound

The odd-year opening July 1 gave Prince William Sound just about double the previous year's fishing time, and the pack showed some recovery from the failure of 1948, with substantial gains in everything but Reds, of which few are ever packed in this area. The total, though practically double that of 1948, was aside from that the smallest in eight years, being some 10% below normal.

The Pink run developed rather slowly, being slack at the start, but gradually improved and was described as strong at the close Aug. 7, resulting in a gain of 152,499 cases or 124% over the previous year. Except for that, Pink production was the smallest since 1941, though larger than in any odd-year for many seasons before.

This was the one Alaskan area to make an excellent showing in Chums and Cohoes. The Chum run was much the best in four years, and the pack, though 45% less than in the cycle-year, 1945, jumped 36,891 cases or 78% over the low figure of 1948; having been exceeded only in 1944 and 1945. The Coho pack, also, was one of the four best on record, with a gain of 5,048 cases or 155%; being 40% above average.

Snow combined with fish-price controversy to delay start of the 1949 season at Cordova. New England Fish Co.'s Orca cannery, shown here, was snowbound May 1; and the Copper River flats were clogged with ice late into May.

Copper River Makes Good Showing in Reds

Copper River Reds, in the face of severe handicaps, staged a gratifying comeback after two seasons of very light production: the pack being almost 3½ times that of 1948; 50% more than in 1947, and 12½% above average. The gain in total, though held down by failure of the fall Coho season, amounted to 21,461 cases.

The operating season was greatly curtailed, with almost three weeks cut off the latter end, and the start delayed until May 23 by labor controversy and ice on the flats, which remained much later than usual. In consequence, some canneries were closed and most of the pack made through joint operation.

Most of the early King run escaped, and the King pack, though ahead of 1948, was below normal. The Red run, however, was much better than usual, and the pack, considerably short of the cycle-year, was the best since 1945. The Coho run, however, started poorly and failed to develop any real volume, and this species fell to the lowest point since 1939—below 1948 by 12,330 cases or 43%.

Copper River Reds were priced at 80c each, an increase of 5c with Kings unchanged at 13c per lb.

Oceanic Sales Company

3302 Smith Tower Seattle 4, Washington

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CANNED SALMON

ALASKA CRAB MEAT
NORTHWEST TUNA
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1949—CENTRAL ALASKA CANNED SALMON PACK—1949

	Company	Cannery Location	Red or Sockeye			Pink			Chum			Coho			King or Chinook			Grand Total (Full Cases)	
			1-Lb. Talls & Flats	½-Lb. Flats (8 doz.)	Total	1-Lb. Talls	½-Lb. Flats (8 doz.)	Total	1-Lb. Talls	½-Lb. Flats (8 doz.)	Total	1-Lb. Talls	½-Lb. Flats (8 doz.)	Total	1-Lb. Talls	½-Lb. Flats (8 doz.)	Total		
1	Ace Trading Co., Inc.	Afognak Island*	5	222	227	181	16	197	23	8	31	44	......	44	......	......	......	499	1
2	Alaska Pacific Salmon Co.	Sand Point	1,122	8,593	9,715	21,265	......	21,265	4,597	......	4,597	827	......	827	176	......	176	36,580	2
3	Alaska Packers Association	Alitak (a)	2,054	......	2,054	16,240	......	16,240	708	......	708	15	......	15	......	......	......	19,017	
		Chignik	20,844	4,148	24,992	2,055	......	2,055	8,838	......	8,838	64	......	64	91	......	91	36,040	3
		Karluk	2,586	8,360	10,946	8,703	......	8,703	10,698	......	10,698	142	......	142	69	......	69	30,558	
4	Alaska Shell Fish, Inc.	Seldovia	......	1,898	1,898	......	1,077	1,077	......	1,135	1,135	422	......	422	......	417	417	4,949	4
5	Alaska Year Round Canneries	Seldovia	6,698	......	6,698	2,278	......	2,278	1,876	......	1,876	1,867	......	1,867	7,307	2,550	9,857	22,576	5
6	B. & G. Packing Co.	Kasilof	905	......	905	......	......	......	67	......	67	247	......	247	94	......	94	1,313	6
7	Berman Packing Co.	Ninilchik*	......	319	319	......	8	8	......	11	11	......	364	364	......	25	25	727	7
8	Cape Douglas Canning Co.	False Pass & Volcano Bay (fl)	2,650	......	2,650	4,500	......	4,500	10,000	......	10,000	......	......	......	20	......	20	17,170	8
9	Chignik Fisheries Co.	Chignik	25,263	......	25,263	1,915	......	1,915	2,337	......	2,337	447	......	447	6	......	6	29,968	9
10	Cook Inlet Packing Co.	Seldovia	6,931	......	6,931	107	......	107	1,071	......	1,071	......	......	......	2,488	......	2,488	10,597	10
11	Copper River Cooperative Co.	Copper R. & Eshamy Bay (fl)	......	3,532	3,532	......	1,938	1,938	......	1,764	1,764	......	107	107	......	59	59	7,400	11
12	Copper River Packing Co.	Port Nellie Juan	959	......	959	28,185	......	28,185	13,284	......	13,284	847	......	847	......	......	......	43,275	12
13	Crystal Falls Fish Co.	Cordova	949	......	949	113	......	113	113	......	113	......	......	......	22	......	22	1,197	13
14	Dayville Packing Co.	Dayville (b)	20	......	20	4,631	......	4,631	5,981	......	5,981	2	......	2	......	......	......	10,634	14
15	Ellamar Packing Co.	Ellamar	393	......	393	20,440	......	20,440	6,445	......	6,445	417	......	417	......	......	......	27,695	15
16	Emard Packing Co.	Anchorage	12,602	1,768	14,370	......	......	......	3,529	......	3,529	4,392	1,042	5,434	......	7,097	7,097	30,430	16
17	Fidalgo Island Packing Co.	Port Graham	20,786	......	20,786	1,615	......	1,615	973	......	973	629	......	629	947	......	947	24,950	17
18	General Fish Co.	Anchorage	6,987	......	6,987	23	......	23	3,714	......	3,714	4,575	......	4,575	49	......	49	15,348	18
19	Grimes Packing Co.	Ouzinkie	2,227	......	2,227	19,506	......	19,506	3,819	......	3,819	377	......	377	14	......	14	25,943	19
20	G. P. Halferty & Co.	Cordova	4,534	2,258	6,792	14,647	407	15,054	4,678	......	4,678	61	......	61	......	327	327	26,912	20
21	P. E. Harris & Co.	False Pass	17,122	......	17,122	10,278	......	10,278	10,808	......	10,808	402	......	402	334	......	334	38,944	21
22	Homer Spit Packing Co.	Homer	......	107	107	......	13	13	......	......	......	......	10	10	......	6	6	136	22
23	Island Seafoods Co.	Chignik (fl)	......	519	519	......	739	739	......	1,305	1,305	......	1,242	1,242	......	......	......	3,805	23
24	Kadiak Fisheries Co.	Port Bailey	11,808	......	11,808	25,490	......	25,490	9,208	......	9,208	901	......	901	88	......	88	47,495	24
		Shearwater Bay	7,064	......	7,064	30,426	......	30,426	2,503	......	2,503	35	......	35	12	......	12	40,040	
25	Kayak Packing Co.*	Alaska Peninsula, etc. (fl)	75	......	75	3,000	......	3,000	1,000	......	1,000	......	......	......	......	......	......	4,075	25
26	R. A. Kester & Associates	Chisik Island (fl)	......	1,331	1,331	......	......	......	......	121	121	......	593	593	......	86	86	2,131	26
27	William C. King	Kodiak Island (fl)	161	......	161	700	......	700	418	......	418	......	......	......	......	......	......	1,279	27
28	Libby, McNeill & Libby	Moser Bay & Kenai	23,685	23,366	47,051	18,833	3,013	21,846	4,646	4	4,650	4,996	......	4,996	6,438	4	6,442	84,985	28
29	Mainland Fisheries, Inc.	Kukak Bay	368	574	942	2,787	283	3,070	4,855	29	4,884	......	......	......	......	......	......	8,896	29
30	New England Fish Co.	Orca	5,036	9,063	14,099	54,994	......	54,994	14,515	......	14,515	2,173	......	2,173	......	608	608	86,389	30
31	Ocean Fresh Seafoods Co.	Cordova	......	12	12	495	......	495	111	......	111	......	......	......	......	......	......	618	31
32	Pacific American Fisheries, Inc.	King Cove, Squaw Harbor, Chignik, Alitak & Snug Harbor (c)	21,239	18,255	39,494	54,254	2,154	56,408	4,617	8,376	12,993	2,050	......	2,050	528	3	531	(x) 111,476	32
33	Parks Canning Co., Inc.	Uyak	3,333	6,287	9,620	7,346	3	7,349	5,266	3	5,269	42	......	42	......	......	......	22,280	33
34	C. B. Parks & Sons	Cordova	1,288	2,266	3,554	8,227	......	8,227	2,325	......	2,325	3,622	......	3,622	......	151	151	17,879	34
35	H. M. Parks Co., Inc.	Cordova	......	256	256	......	4,179	4,179	......	4,176	4,176	28	......	28	......	......	......	8,639	35
36	Peninsula Packers	False Pass (fl)	5,679	......	5,679	113	......	113	3,665	......	3,665	......	......	......	34	......	34	9,491	36
37	Port Ashton Packing Corp.	Port Ashton	833	......	833	34,342	......	34,342	6,370	......	6,370	889	......	889	......	......	......	42,434	37
38	Port Chatham Packing Co.	Portlock	......	462	462	......	586	586	......	883	883	......	30	30	......	75	75	2,036	38
39	Resurrection Bay Co.	Seward	140	......	140	2,386	......	2,386	652	......	652	1,692	......	1,692	......	......	......	4,870	39
40	San Juan Fishing & Packing Co.	Port San Juan	1,261	......	1,261	57,718	......	57,718	8,866	......	8,866	5,395	......	5,395	134	......	134	73,374	40
		Uganik Bay	3,054	......	3,054	8,183	......	8,183	6,991	......	6,991	363	......	363	......	......	......	18,591	
41	Seldovia Bay Packing Co. (d)	Seldovia	24,534	557	25,091	11,642	1,593	13,235	5,596	415	6,011	1,856	174	2,030	5,239	19	5,258	51,625	41
42	Snug Harbor Packing Co.	Snug Harbor	15,544	......	15,544	18	......	18	271	......	271	1,731	......	1,731	351	......	351	(x) 17,915	42
43	Southwestern Fishery Co.	Iron Creek*	2,433	......	2,433	4,822	......	4,822	990	......	990	143	......	143	......	......	......	8,388	43
44	Standard Salmon Co.	Valdez	14	......	14	3,685	......	3,685	3,174	......	3,174	201	......	201	......	......	......	7,074	44
45	Uganik Fisheries, Inc.	Uganik Bay	996	......	996	4,654	......	4,654	3,992	......	3,992	219	......	219	......	......	......	9,861	45
46	Washington Fish & Oyster Co.	Port Williams	532	......	532	16,761	......	16,761	3,119	......	3,119	1,140	......	1,140	......	......	......	21,552	46
47	Western Fisheries Co.	Cordova	3,864	6,798	10,662	24,681	......	24,681	6,975	......	6,975	10,866	......	10,866	......	454	454	53,638	47
48	West Point Canning Co.	Uganik Bay	......	727	727	......	78	78	......	166	166	......	......	......	......	......	......	971	48
49	Westward Packing & Trading Co.	Kenai (e)	4,985	......	4,985	......	......	......	857	......	857	1,009	......	1,009	6	......	6	6,857	49
50	Whiz Fish Products Co.	Cordova (f)	7,706	3,814	11,520	14,423	......	14,423	3,836	......	3,836	342	......	342	1	310	311	30,432	50
		Kodiak	4,483	......	4,483	17,689	......	17,689	4,316	......	4,316	377	......	377	574	......	574	27,439	
	TOTAL		285,752	105,492	391,244	564,351	16,087	580,438	202,693	18,396	221,089	55,847	3,562	59,409	25,022	12,191	37,213	1,289,393	

*New Cannery. (fl) Indicates floating cannery.

(a) Packed through joint operation in Pacific American plant.
(b) Includes fish canned for James Dolan & Co. (c) Pack of Pacific American Fisheries, Inc., is shown in detail on another page. Chignik pack made through joint operation in plant of Alaska Packers Association; Snug Harbor pack through joint operation in plant of Snug Harbor Packing Co.

(d) Formerly Alaska Seldovia Packers, Inc. (e) Leased cannery, formerly owned by Kenai Packing Co. (f) Whiz Cordova pack includes fish canned through joint operation in G. P. Halferty plant, and pack made by Whiz for Granite Point Packing Co.

(x) One-lb. Flats are included with 1-lb. Talls as follows: Pacific American Fisheries, Inc., Reds, 5,069 cases; Chums, 247 cases; Cohoes, 1,003 cases; Kings, 167 cases; Snug Harbor Packing Co., Reds, 3,943 cases; Cohoes, 1,004 cases; Kings, 191 cases.

ESTABLISHED 1898

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VANCOUVER, B. C.
448 Seymour Street

Canned Fish
Exporters

Cable Address—**MISKAND**

1949—SOUTHEAST ALASKA CANNED SALMON PACK—1949

	Company	Cannery Location	RED or SOCKEYE			PINK			CHUM			COHO			KING		
			1-lb. Talls	½-lb. Flats (8-Doz.)	Total	1-lb. Talls	½-lb. Flats	Total	1-lb. Talls	½-lb. Flats (8-Doz.)	Total	1-lb. Talls	½-lb. Flats	Total	Total (Full Cases)	Grand Total (Full Cases)	
1	Annette Islands Canning Co.	Metlakatla	485	....	485	87,136	....	87,136	5,423	....	5,423	1,154	....	1,154	....	94,198	1
2	W. S. Balcom	Kasaan(a)	269	....	269	19,815	....	19,815	2,067	....	2,067	806	....	806	....	22,957	2
3	Binkley Canning Co.	Wrangell	....	119	119	....	6,086	6,086	....	917	917	....	194	194	(j)20	7,336	3
4	Columbia River Packers Assoc., Inc.	Todd(b)	68	....	68	33,839	....	33,839	3,247	....	3,247	860	....	860	....	38,014	4
5	Farwest Wrangell Co.	Wrangell	157	1,430	1,587	95,662	4,109	99,771	7,606	....	7,606	621	8,798	9,419	(k)477	118,860	5
6	Fidalgo Island Packing Co.	Ketchikan	444	....	444	43,122	....	43,122	5,112	....	5,112	1,538	....	1,538	....	50,311	6
		Pillar Bay(c)	32	....	32	15,934	....	15,934	1,024	....	1,024	418	....	418	....	17,408	
7	Haines Packing Co.	Letnikof Cove	....	8,259	8,259	....	745	745	....	638	638	....	110	110	....	9,752	7
8	P. E. Harris & Co.	Hawk Inlet(d)	942	....	942	83,627	....	83,627	9,160	....	9,160	3,992	....	3,992	....	97,721	8
9	Hood Bay Salmon Co.	Hood Bay	155	....	155	40,997	....	40,997	4,579	....	4,579	634	....	634	....	46,365	9
10	Hydaburg Cooperative Assn.	Hdyaburg	600	....	600	7,409	....	7,409	1,823	....	1,823	408	....	408	....	10,240	10
11	Icy Straits Salmon Co.	Hoonah	716	4,935	5,651	44,741	147	44,888	29,320	67	29,387	10,343	14	10,357	(l)41	90,324	11
12	Independent Salmon Canneries, Inc.	Ketchikan	516	....	516	43,122	....	43,122	7,349	....	7,349	9,590	....	9,590	....	60,577	12
13	Kayler-Dahl Fish Co.	Petersburg	....	7,165	7,165	....	15,453	15,453	....	1,077	1,077	....	1,120	1,120	....	24,815	13
14	Ketchikan Packing Co.	Ketchikan	946	....	946	67,961	....	67,961	9,360	....	9,360	3,264	....	3,264	....	81,531	14
15	Libby, McNeill and Libby	George Inlet, Klawock, Craig and Hoonah(e)	1,123	97	1,220	171,675	6,060	177,735	17,432	....	17,432	5,143	....	5,143	....	201,530	15
16	Lutak Fish Co.	Lutak Inlet	(h)719	25	744	(h)46	....	46	(h)17	....	17	(h)15	....	15	....	822	16
17	Nakat Packing Corp.	Hidden Inlet, Ketchikan and Waterfall	2,355	1,232	3,587	375,005	3,011	378,016	36,109	376	36,485	13,982	5,311	19,293	....	437,381	17
18	New England Fish Co.	Ketchikan	911	....	911	119,197	....	119,197	13,982	....	13,982	3,562	....	3,562	....	137,652	18
		Noyes Island	435	....	435	66,758	....	66,758	5,750	....	5,750	2,292	....	2,292	....	75,235	
19	North Pacific Canning Co., Inc.	Scow Bay	179	....	179	47,584	....	47,584	2,743	....	2,743	954	....	954	....	51,460	19
20	Oceanic Fisheries Co., Inc.	Port Conclusion	97	....	97	32,298	....	32,298	2,002	....	2,002	8,554	....	8,554	....	42,951	20
21	Pacific American Fisheries, Inc.	Petersburg, Kasaan, Pillar Bay and Hawk Inlet(f)	1,687	....	1,687	257,226	21	257,247	24,601	....	24,601	7,779	....	7,779	....	291,314	21
22	Peninsula Packers	Todd(fl)	75	....	75	33,982	....	33,982	3,289	....	3,289	858	....	858	....	38,204	22
23	Pyramid Fisheries Co.	Sitka	142	....	142	34,447	....	34,447	2,457	(i) 300	2,757	460	....	460	....	37,806	23
24	Queen Fisheries, Inc.	Kake(fl)†	....	....	....	11,714	....	11,714	3,969	....	3,969	114	....	114	....	15,797	24
25	Smith, Wm. F. (g)	Sitka	....	26	26	....	1,814	1,814	....	91	91	....	1,576	1,576	....	3,507	25
26	Specialty Processors, Inc.	Petersburg	40	229	269	29,528	14	29,542	2,026	17	2,043	1,663	5	1,668	....	33,522	26
27	Superior Packing Co.	Tenakee	127	....	127	35,047	....	35,047	4,500	....	4,500	960	....	960	....	40,634	27
28	Todd Packing Co.	Todd	75	....	75	33,980	....	33,980	3,291	....	3,291	858	....	858	....	38,204	28
29	Wards Cove Packing Co.	Ketchikan	696	....	696	97,143	....	97,143	13,680	....	13,680	4,503	....	4,503	....	116,022	29
30	West Coast Salmon Co., Inc.	Klawock	112	....	112	39,221	....	39,221	4,410	....	4,410	1,009	....	1,009	....	44,752	30
31	Whiz Fish Products Co.	Pelican	1,603	....	1,603	38,882	....	38,882	2,311	....	2,311	14,965	....	14,965	(k)54	57,815	31
32	Miscellaneous, Custom-Canned, etc.	At Various Points (Estimated)	105	157	262	56,792	1,159	57,951	10,801	157	10,958	5,657	975	6,632	454	76,257	32
	TOTAL		15,811	23,674	39,485	2,063,985	38,619	2,102,604	239,440	3,640	243,080	106,956	18,103	125,059	1,046	2,511,274	

(a) Fish canned in plant of Pacific American Fisheries, Inc.

(b) Canned through joint operation in plant of Peninsula Packers.

(c) Pillar Bay cannery not operated; fish canned in Ketchikan plant.

(d) Includes salmon canned through joint operation in Pacific American plant, Petersburg.

(e) Icy Strait fish canned in Hoonah plant of Icy Straits Salmon Co.

(f) Pack of Pacific American Fisheries, Inc., is shown in detail on another page. Pillar Bay pack made through joint operation in Fidalgo Island Packing Co.'s cannery; Hawk Inlet pack through joint operation in plant of P. E. Harris & Co.

(g) Formerly Smith & Morrow.

(h) Four-lb. Flats, tabulated in 1-lb. Tall columns.

(i) Barbecued salmon. (j) ½-lb. Flats, full cases (8 doz.)

(k) 1-lb. Talls.

(l) Includes 32 full cases ½-lb. Flats, 9 cases 1-lb. Talls.

(fl) Indicates Floating Cannery. †Not previously operated in Southeast Alaska.

Marketing Fine Quality Alaskan Seafoods

LABELED

RED PRIDE—Red Sockeye
SILVER PRIDE—Medium Red
SNO-TIME—Pinks
SNO-TIP—Chums
ROYAL RED—Crabmeat
ROYAL RED—Clams

CANNED SALMON: Copper River Chinook and Sockeye; Southeastern Cohoe; Alaska Reds, Pinks and Chums. Packed 48/½lb. flats and 48/1 lb talls.

CANNED AND FROZEN CRABMEAT: Fancy pack Dungeness variety. Frozen in five pound cans. Canned in 48/½ lb. flats and 24/1 lb. No. 2's.

FROZEN HALIBUT: Packed in 200 pound boxes. Also Halibut Viscera and Livers in 5 gal. cans.

CANNED CLAMS: Alaska Minced Razors at their best. Packed in 48/½ lb. flats.

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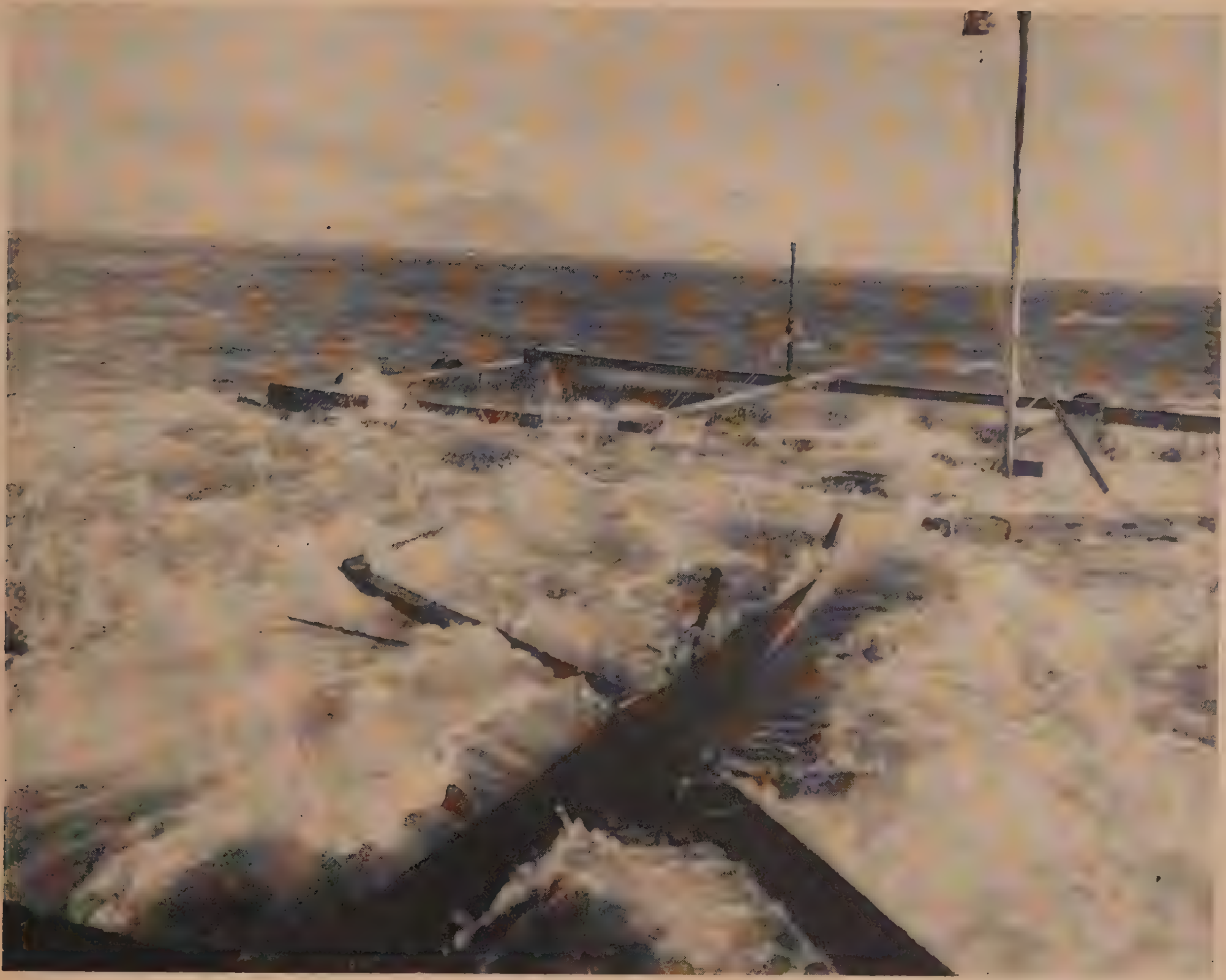

SOUTHEAST ALASKA FLOATING SALMON TRAP IN A GALE

Salmon trap operation involves hazards beyond those imposed by the vagaries of salmon runs. The cost of a trap runs into thousands of dollars, and they are often destroyed by storms during the progress of the season. This trap appears in the process of breaking-up. The season of 1948 was particularly disastrous from the standpoint of salmon traps in Southeast Alaska, where heavy storms in mid-season put many entirely out of commission. This photograph was taken from the shack in which the trap watchman was riding out the gale.

Astounding Increase In Southeast Alaska

Another flat failure was anticipated for SOUTHEAST ALASKA, and operating facilities were greatly curtailed—but this area astounded everybody with a pack of over 2,000,000 cases for the first time since 1942—with an extra half-million thrown in for good measure; and much more could have been produced if canning capacity had been normal. The total was not large compared with most seasons between 1915 and 1938, but exceeded the average of the past ten years by almost 20%—increasing 1,213,020 cases or 93.4% over 1948.

The increase was in Pinks—except for an insignificant gain in Reds, which remained far below normal and comprised but 1½% of the total: Chums, Cohoes and Kings all showing sharp declines from the previous year. The Pink pack was over 2,100,000 cases—three times that of either 1948 or the cycle-year 1947: by far the largest since 1941 and, with that exception, since 1937.

This was more than 1½ million short of the 1941 record, and has been exceeded ten times since 1916, which marked the start of really large production; but it refuted the idea that Southeast Alaska Pinks were depleted, and confounds all efforts to predict the volume of the run from present data.

Chums, on the other hand, dropped 160,879 cases or 40% from the previous year, with the smallest output since 1927 and third-smallest since 1910—42½% short of the ten-year average. Cohoes held close to average, but were off 39,974 cases or almost one-fourth from 1948; making, with that exception, the largest pack in seven years.

Operations Restricted

On prediction of a very light run, corresponding to the cycle-year 1947, the announced season cut fish-

Alaska Canned Salmon Pack by Subdivisions, 1940 to 1949

District and Year	Reds (Cases)	Pinks (Cases)	Chums (Cases)	Cohoes (Cases)	Kings (Cases)	Total (Cases)
Bristol Bay and Yukon (June 25-July 25)—						
1940	402,899	16,081	30,624	1,445	3,504	454,553
1941	577,024	9	50,901	3,436	5,785	637,155
1942	438,053	8,564	16,749	2,638	7,001	473,005
1943	1,275,212	....	37,757	180	11,826	1,324,975
1944	954,694	3,911	31,838	2,408	5,420	998,271
1945	576,318	....	66,888	3,105	9,478	665,789
1946	628,240	4,073	36,436	2,663	10,768	682,180
1947	1,335,031	....	35,802	1,866	13,737	1,386,436
1948	1,212,233	3,148	64,167	4,140	13,576	1,297,264
1949	524,044	....	32,684	1,962	13,179	571,869
Average	**792,375**	**5,964***	**40,384**	**2,384**	**9,427**	**849,150**
Alaska Peninsula, North Side (June 20-July 31)—						
1940	56,158	....	4,914	....	79	61,151
1941	36,366	95	4,953	....	179	41,593
1942	....	....	....	....	....	....
1943	39,330	54	3,680	....	56	43,120
1944	31,849	130	12,855	....	21	44,855
1945	32,342	127	25,007	....	22	57,498
1946	27.821	....	1,798	....	167	29,786
1947	25,675	....	6,047	8	71	31,801
1948	65,961	101	17,474	1,220	310	85,066
1949	9,860	66	4,843	1,776	136	16,681
Average	**32,332**	**59**	**11,034**	**601**	**141**	**44,166**
Alaska Peninsula, South Side (May 27—Aug. 5)—						
1940	88,690	356,969	209,749	18,063	3,330	676,801
1941	97,695	233,438	163,058	17,298	3,008	514,497
1942	56,886	291,392	117,532	10,437	843	477,090
1943	177,000	167,024	70,727	6,657	1,934	423,342
1944	40,585	123,988	82,560	21,108	819	269,060
1945	58,984	140,319	73,752	9,923	1,765	284,743
1946	50,808	89,164	88,544	12,122	688	241,326
1947	83,407	115,916	81,921	4,343	456	286,043
1948	23,916	66,743	82,494	2,689	151	175,993
1949	47,972	70,435	37,672	1,476	726	158,261
Average	**53,017**	**96,515**	**72,876**	**6,110**	**757**	**229,273**
Chignik (June 10-Sept. 15)—						
1940	27,772	4,083	2,349	20	....	34,224
1941	59,373	16,373	15,345	2,322	316	93,729
1942	56,977	22,962	11,853	1,093	378	93,263
1943	110,086	4,265	4,638	1,924	290	121,203
1944	47,448	29,283	6,221	1,223	442	84,617
1945	18,666	18,381	11,582	638	222	49,489
1946	70,817	39,544	22,049	695	305	133,410
1947	146.788	23,640	5,417	512	111	176,468
1948	33,574	47,393	31,348	79	79	112,473
1949	54,047	3,974	11,315	505	130	69,971
Average	**64,778**	**26,586**	**16,342**	**486**	**169**	**108,362**
Kodiak Area (June 6-Aug. 13 and Sept 10-30)—						
1940	93,751	443,154	60,332	14,246	313	611,796
1941	121,725	508,306	57,368	22,854	638	710,891
1942	83,340	313,711	76,563	10,751	363	484,728
1943	129,105	555,209	41,766	5,682	308	732,070
1944	142,212	335,683	56,035	5,623	183	539,736
1945	154,513	491,346	64,957	5,640	521	716,977
1946	65,810	541,334	37,817	3,982	34	648,977
1947	85,805	494,211	23,133	6,752	27	609,928
1948	98,030	303,564	93,918	4,046	189	499,747
1949	69,807	208,395	63,449	5,072	807	347,530
Average	**94,793**	**407,770**	**56,655**	**5,098**	**316**	**564,632**
Cook Inlet (May 20-Aug. 8)—						
1940	129,952	122,437	26,695	46,015	15,995	341,093
1941	90,885	38,235	24,706	31,105	27,448	212,379
1942	98,418	55,722	40,110	61,734	28,617	284,604
1943	102,746	60,540	26,292	23,447	30,963	243,988
1944	156,799	96,694	23,311	25,442	25,668	327,914
1945	118,849	54,370	28,302	28,718	22,420	252,659
1946	105,065	60,101	31,593	35,835	17,191	249,785
1947	106,180	30,073	21,183	34,430	30,718	222,584
1948	133,828	75,678	38,086	29,462	32,688	309,742
1949	163,590	12,217	22,924	24,131	30,787	253,649
Average	**125,502**	**46,488**	**28,418**	**30,515**	**26,761**	**257,684**
Prince William Sound and Resurrection Bay (July 1-Aug. 7)—						
1940	7,065	521,745	54,001	10,257	182	593,250
1941	7,083	217,007	73,776	6,430	100	304,396
1942	13,289	366,965	82,633	13,703	449	477,039
1943	9,285	511,818	30,620	8,237	2,595	562,555
1944	12,741	416,848	118,159	7,902	158	555,808
1945	17,382	493,482	154,080	4,941	102	669,987
1946	10,432	317,329	76,003	16,037	408	420,209
1947	17,955	380,017	65,018	7,270	180	470,440
1948	19,115	123,411	47,008	5,048	74	194,656
1949	8,410	275,910	83,899	12,892	160	381,271
Average	**14,659**	**318,030**	**85,202**	**9,239**	**185**	**427,313**
Copper and Bering River Area (May 1-June 15 and Aug. 10-Sept. 18)—						
1940	37,847	....	....	30,521	1,337	69,705
1941	36,868	559	20	82,563	3,067	123,077
1942	47,849	82	15	84,225	5,262	137,433
1943	57,418	54	....	21,783	4,893	84,148
1944	62,780	....	....	34,949	2,517	100,246
1945	70,744	....	39	41,064	6,037	117,884
1946	45,645	....	....	25,821	7,145	78,611
1947	30.717	....	....	22,231	3,596	56,544
1948	13,536	....	....	28,405	1,237	43,180
1949	46,461	....	....	16,075	2,105	64,641
Average	**41,421**	....	**8**	**26,719**	**4,024**	**72,172**
Yakutat Area (May 15-Sept. 30)—						
1940	14,947	4,962	164	27,747	511	48,331
1941	18,624	4,505	566	41,402	799	65,896
1942	11,005	2,465	10	21,513	96	35,089
1943	18,096	1,618	....	12,606	234	32,554
1944	15,386	3,447	3	14,301	789	33,926
1945	18,079	795	105	18,018	576	37,573
1946	4,081	1,939	23	4,056	358	10,457
1947	5,632	1,169	255	4,052	160	11,268
1948	3,589	4,042	506	10,840	305	19,282
1949	(No operation in 1949)					
Average	**7,845**	**1,986**	**222**	**9,241**	**350**	**19,645**
Cape Fairweather—Dixon Entrance (Aug. 15-Sept. 8 and Oct. 5-Oct. 15)						
1940	110,661	1,453,109	485,623	128,333	713	2,178,439
1941	119,235	3,636,256	319,372	152,569	1,005	4,228,437
1942	105,506	1,753,582	596,171	156,409	1,950	2,613,618
1943	67,247	1,036,821	673,692	80,928	1,626	1,860,314
1944	116,922	1,082,648	663,505	74,543	1,008	1,938,626
1945	111,717	1,040,854	266,732	90,687	1,980	1,511,970
1946	54,348	997,975	322,597	88,891	2,058	1,465,869
1947	50,273	679,648	257,689	69,490	3,843	1,060,943
1948	36,118	680,400	406,887	148,384	5,380	1,277,169
1949	39,485	2,102,604	243,080	125,059	1,046	2,511,274
Average	**58,388**	**1,100,296**	**299,397**	**104,502**	**2,861**	**1,565,445**
TOTAL—						
1940	969,742	2,922,540	874,451	276,647	25,963	5,069,343
1941	1,164,878	4,654,783	710,065	359,979	42,345	6,932,050
1942	911,323	2,815,445	941,636	362,503	44,959	5,075,866
1943	1,985,525	2,337,403	889,172	161,444	54,725	5,428,269
1944	1,581,416	2,092,632	994,487	187,499	37,025	4,893,059
1945	1,177,594	2,239,674	691,444	202,734	43,123	4,354,569
1946	1,063,067	2,051,459	616,860	190,102	39,122	3,960,610
1947	1,887,463	1,724,674	496,465	150,954	52,899	4,312,455
1948	1,639,902	1,304,480	781,888	234,313	53,989	4,014,572
1949	963,656	2,673,601	499,866	188,948	49,076	4,375,147
Average	**1,346,336**	**1,998,778**	**617,305**	**193,410**	**47,642**	**4,203,471**
Icy Strait District* (Aug 15-Sept. 8 and Oct. 5-Oct. 15)—						
1943	11,397	60,881	63,985	3,147	124	139,534
1944	21,568	123,896	67,537	3,830	77	216,908
1945	13,827	45,971	25,095	4,789	278	89,960
1946	6,315	26,449	31,376	4,436	60	68,636
1947	6,504	30,952	14,498	3,014	118	55,086
1948	501	2,745	6,893	1,239	....	11,378
1949	5,665	51,485	29,760	10,436	41	97,387
Average	**6,562**	**31,520**	**21,524**	**4,783**	**99**	**84,489**
Western District* (Aug. 15-Sept. 8 and Oct. 5-Oct. 15)—						
1943	16,266	123,318	177,210	9,039	55	325,888
1944	21,771	277,172	191,816	7,384	7	498,150
1945	23,247	109,183	65,431	6,585	19	204,465
1946	14,813	81,192	74,500	6,837	479	177,821
1947	17,718	92,612	57,592	14,658	837	183,417
1948	11,308	54.905	64,803	37,562	555	169,133
1949	12,580	378,876	43,136	29,721	442	464,755
Average	**15,933**	**143,354**	**61,092**	**19,073**	**466**	**239,918**
Eastern District* (Aug. 15-Sept. 8 and Oct. 5-Oct. 15)—						
1943	7,192	93,048	110,912	5,452	799	217,403
1944	10,905	116,501	109,884	5,384	426	243,100
1945	10,168	94,505	29,267	4,010	207	138,157
1946	6,082	29,636	21,480	4,622	122	61,942
1947	5,342	38,272	28,935	3,960	510	77,019
1948	4,240	13,308	15,378	12,542	1,736	47,204
1949	92	43,944	6,055	8,661	....	58,752
Average	**5,185**	**43,933**	**20,223**	**6,759**	**515**	**76,615**
Wrangell District* (June 25-Sept. 20 and Oct. 5-Oct. 15)—						
1943	11,618½	120,730	80,696	17,431½	68	230,544
1944	16,065	59,256	66,069	9,024	17	150,431
1945	17,600	118,531	17,603	15,571	101	169,406
1946	6,417	66,258	16,017	18,894	173	107,759
1947	6,226	99,343	23,870	11,315	2,308	143,062
1948	7,260	53,860	55,460	22,799	2,971	142,350
1949	9,573	312,318	22,417	17,176	563	362,047
Average	**9,415**	**130,060**	**27,073**	**17,151**	**1,223**	**184,925**
So. Prince of Wales Isl. Dist.* (Aug. 15-Sept. 8)—						
1943	5,656	162,482	75,217	15,765	15	259,135
1944	7,790	144,209	94,371	18,775	41	265,186
1945	11,217	225,606	43,240	26,200	74	306,337
1946	6,141	203,887	67,452	17,339	1	294,820
1947	4,626	110,324	42,141	12,150	....	169,241
1948	2,886	163,397	64,240	26,125	....	256,648
1949	3,014	406,385	41,200	17,701	....	468,300
Average	**5,577**	**221,920**	**51,655**	**19,903**	**15**	**299,069**
Southern District* (Aug. 15-Sept. 8)—						
1943	23,660	473,156	165,752	29,054	483	692,105
1944	38,465	349,073	132,735	29,147	335	549,755
1945	33,735	418,327	77,829	30,282	591	560,764
1946	16,994	582,377	101,901	34,756	580	736,608
1947	9,279	308,929	88,107	22,049	199	428,563
1948	9,661	388,325	192,232	39,446	....	629,664
1949	8,561	909,596	100,512	41,364	....	1,060,033
Average	**15,646**	**521,511**	**112,116**	**33,579**	**274**	**683,126**

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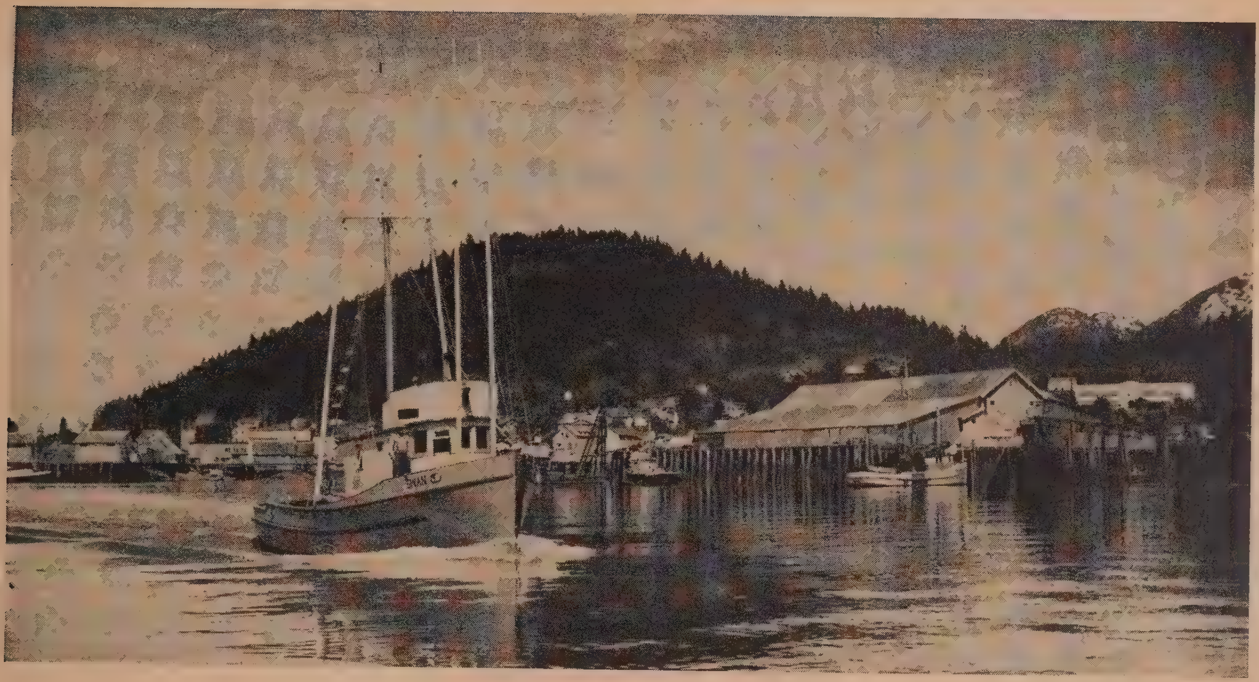
* Average of the 6 years of production.

NOTE—Some slight discrepancies will be noted between the above figures, compiled by the U. S. Fish & Wildlife Service, and other tabulations compiled independently by **Pacific Fisherman.** Statistics for 1949 are only preliminary, as reported weekly during the season; those for previous years (except for the subdivisions of Southeast Alaska) are final totals of the packs for each district, as officially published in "Alaska Fisheries and Fur-Seal Industries."

*Figures for these districts of Southeast Alaska are the provisional season totals taken from current records of the Fish & Wildlife Service. Final data for Southeast Alaska are no longer reported by subdivisions.

"**Average**" figures are for 5-year periods except on Bristol Bay, where, since the 5-year average would be misleading, a 10-year period is used.

Opening and closing dates, as indicated for the various areas, are for the 1949 season and are of general application only, taking no account of special variations for specific localities or particular types of gear.



WRANGELL — HOT-SPOT OF THE GREAT 1949 PINK SALMON RUN

Although the great Pink salmon run of 1949 extended over all Southeast Alaska, Wrangell was perhaps the hottest spot of all, due to the fantastic run of salmon into near-by Anan Creek, where one purse seiner took 55,000 salmon in a single set of his net. In the right of this picture is the cannery of the Farwest Wrangell Co., whose pack of 118,000 full cases (143,000 "as they run") in a three weeks' season stands as something of a record for a plant of this size. At that, the company could not begin to handle all the salmon offered, and disposed of large quantities to its competitors.

ing time to about a week less than in 1948 in the north and several days less in the south; some large sections being entirely closed. This, with new Alaska taxes and other burdens, seemed to make profitable operation impossible, and resulted in minimum preparations, with at least half-a-dozen canneries closed. The late opening was held largely responsible for the small packs of Reds and Chums.

Early in August, however, a large and increasing Pink run appeared, first in the north and then throughout the area, and the opening date of Aug. 15 was extended to all major sections. Catches immediately commenced to tax canning capacity, and the following 24 days to the close were a nightmare of feverish effort to take care of the fish that came pouring into all operating plants. In view of the heavy run, the season was extended to Sept. 8—nearly a week—and the run at most points continued strong to the close.

Capacity Was Inadequate

Preparations had been too small to permit full-scale production, though every effort was made to provide personnel and facilities for increased capacity. In spite of overtime work to the limit of endurance, there was much fish that could not be canned: large quantities were shipped to British Columbia; much was frozen for later canning; some was shipped to Puget Sound plants, and some at times went to waste.

Can supply became a critical problem, but was met by rushing shipments from Seattle and moving surplus stocks from areas to Westward, providing enough to keep running. Transportation was inadequate for the unexpected tonnage, and the pack occupied all available space in the cannery communities.

Great quantities of Pinks were transferred between districts, especially from the north to plants farther south, seeking points of least congestion; and the pack figures do not closely reflect the runs of the respective districts. The increase over 1948 in Pink *packs* ranged from 134% in the Southern district to 149% in the South Wales; 230% in the Eastern; 480% in the Wrangell; 600% in the Western, and 1775% in the Icy Strait district. The latter district had a big increase in Chums and Cohoes, which were very scarce elsewhere.

Escapement to some spawning grounds was excessive, with congestion which is expected to be detrimental to the succeeding brood.

Southeast Alaska fish prices, set just before the opening, were: Pinks, 37½c each; Chums, 55c; Cohoes, 70c; Reds, 80c; Kings, $2.05. The Pinks ran very small in size, about 23 to the case.

Very little interest was taken in fall operation, as the season was limited to nine fishing days—Oct. 5 to 15—in six specific localities; but one cannery operated, and a good many fall Chums were frozen or shipped in refrigeration to Puget Sound canneries.

Economical, too

TO SERVE the palate, the budget, and the health of the American public is a large order. But canned salmon measures up as few food products can.

Salmon is one of the most economical protein foods the American family can buy. A one-pound can makes an appetizing, delicious, satisfying main dish for a family of four any time. The price by the pound is economical at the grocery store, even more economical at meal-time . . . because the consumer saves the trimming and cooking losses of other protein foods.

Through the years, the canned salmon industry has brought consumers a fine food product, constantly improved to meet the public taste. It's good food by any standard of the palate or of nutritional requirements. *And it's a good buy!*

All the facilities of Pacific American Fisheries are pledged to continually improved standards of production and distribution for the continued development and prosperity of the industry.

PACIFIC AMERICAN FISHERIES, Inc.
South Bellingham, Washington
"Quality Always"

SALES SUBSIDIARY: DEMING & GOULD COMPANY, SOUTH BELLINGHAM

Pack of Canned Salmon in Alaska, by Districts -- 1887 to 1949

	SOUTHEAST ALASKA							CENTRAL ALASKA							WESTERN ALASKA									
YEAR	PLANTS OPERATED	RED	PINK	CHUM	COHO	KING	TOTAL CASES	PLANTS OPERATED	RED	PINK	CHUM	COHO	KING	TOTAL CASES	PLANTS OPERATED	RED	PINK	CHUM	COHO	KING	TOTAL CASES	NUMBER PLANTS OPERATED	**Total Cases**	YEAR
1887	5	....	....	....	....	....	31,462	2	....	....	....	....	....	102,515	3	....	....	....	....	....	72,700	10	**206,677**	1887
1888	6	....	....	....	....	....	81,128	6	....	....	....	....	....	241,101	4	....	....	....	....	....	89,886	16	**412,115**	1888
1889	12	....	....	....	....	....	141,760	21	....	....	....	....	....	461,451	4	....	....	....	....	....	115,985	37	**719,196**	1889
1890	12	....	....	....	....	....	142,901	19	....	....	....	....	....	421,300	4	....	....	....	....	....	118,390	35	**682,519**	1890
1891	11	....	....	....	....	....	156,615	14	....	....	....	....	....	511,367	5	....	....	....	....	....	133,418	30	**801,400**	1891
1892	7	....	....	....	....	....	115,722	6	....	....	....	....	....	295,496	2	....	....	....	....	....	63,499	15	**474,717**	1892
1893	8	....	....	....	....	....	136,053	11	....	....	....	....	....	399,815	3	....	....	....	....	....	107,786	22	**643,654**	1893
1894	7	....	....	....	....	....	142,544	10	....	....	....	....	....	435,052	4	....	....	....	....	....	108,844	21	**686,440**	1894
1895	7	....	....	....	....	....	148,476	10	....	....	....	....	....	327,919	6	....	....	....	....	....	150,135	23	**626,530**	1895
1896	9	138,792	91,215	452	28,135	3,787	262,381	12	448,882	20,771	....	8,882	7,455	485,990	8	....	....	....	....	....	218,336	29	**966,707**	1896
1897	9	97,223	140,506	1,396	26,769	5,973	271,867	13	356,428	14,082	....	6,669	5,720	382,899	7	234,930	3,123	....	10,119	6,140	254,312	29	**909,078**	1897
1898	9	116,924	89,718	4,622	38,011	2,110	251,385	14	355,857	19,681	85	13,495	5,891	395,009	7	310,160	....	477	3,205	4,861	318,703	30	**965,097**	1898
1899	9	134,752	138,329	1,000	28,587	7,551	310,219	14	327,708	10,830	....	10,489	7,068	356,095	9	401,794	....	931	326	8,781	411,832	32	**1,078,146**	1899
1900	16	167,787	217,231	22,061	36,743	12,817	456,639	14	456,604	12,314	132	11,427	11,746	492,223	12	573,015	2,477	7,819	2,814	13,152	599,277	42	**1,548,139**	1900
1901	21	....	....	....	....	....	735,449	13	....	....	....	....	....	562,142	21	....	....	....	....	....	719,213	55	**2,016,804**	1901
1902	26	....	....	....	....	....	906,676	12	....	....	....	....	....	583,690	26	....	....	....	....	....	1,046,458	64	**2,536,824**	1902
1903	21	....	....	....	....	....	642,305	12	....	....	....	....	....	417,175	27	....	....	....	....	....	1,186,730	60	**2,246,210**	1903
1904	12	....	....	....	....	....	569,003	11	....	....	....	....	....	499,485	32	....	....	....	....	....	885,268	55	**1,953,756**	1904
1905	13	207,375	142,008	37,685	41,079	5,460	433,607	9	345,575	3,235	....	16,518	6,427	371,755	25	1,021,478	23,354	4,287	9,797	30,238	1,089,154	47	**1.894,516**	1905
1906	20	250,567	326,713	131,405	84,149	2,396	795,230	8	451,659	3,188	....	10,316	7,861	473,024	19	798,504	19,866	123,407	16,278	20,680	978,735	47	**2 246,989**	1906
1907	22	177,149	542,268	140,392	58,632	1,289	919,730	8	482,968	10,255	....	15,258	14,355	522,836	18	657,687	18,244	44,025	11,784	27,794	759,534	48	**2,202,100**	1907
1908	23	198,366	592,638	180,204	48,963	2,552	1,022,723	8	377,101	30,661	....	11,543	6,416	425,721	19	1,087,211	20,834	38,309	8,426	14,824	1,169,604	50	**2,618,048**	1908
1909	19	280,542	455,999	83,001	39,920	857	860,319	8	358,285	5,581	....	10,275	16,913	391,054	18	1,074,667	3,293	37,711	6,361	30,264	1,152,296	45	**2,403,669**	1909
1910	23	282,265	494,363	231,735	82,620	402	1,091,385	10	364,875	31,797	131	19,928	15,786	432,517	19	825,447	31,348	22,352	11,641	24,087	914,138	52	**2,438,777**	1910
1911	32	238,895	969,866	290,843	100,793	1,441	1,601,838	11	412,647	24,143	2,008	17,326	15,862	471,986	21	669,163	27,347	10,969	11,585	28,075	747,139	64	**2,820,963**	1911
1912	51	254,851	1,053,847	589,578	134,914	6,607	2,039,777	14	422,347	136,891	29,591	19,782	14,198	622,809	22	1,227,060	114,247	19,359	15,088	21,789	1,397,543	87	**4,060,129**	1912
1913	42	190,685	1,299,400	254,689	58,071	1,006	1,803,851	14	364,253	49,299	5,038	13,284	15,393	447,267	23	1,419,381	54,217	7,927	6,022	17,768	1,505,315	79	**3,756,433**	1913
1914	45	294,842	872,504	597,435	112,163	12,087	1,889,031	14	395,110	195,830	17,693	36,739	11,132	656,504	23	1,511,622	29,489	47,350	8,890	24,946	1,622,297	82	**4,167,832**	1914
1915	46	229,709	1,820,171	375,260	90,161	25,135	2,540,436	17	500,000	43,951	39,404	26,062	22,978	632,395	23	1,192,248	6,251	69,744	10,347	37,581	1,316,171	86	**4,489,002**	1915
1916	54	182,075	1,335,291	505,405	182,405	18,482	2,223,658	19	572,096	371,845	64,320	55,298	22,160	1,085,719	27	1,365,271	46,410	145,513	27,481	25,537	1,610,212	100	**4,919,589**	1916
1917	60	202,951	2,149,075	750,187	152,538	29,657	3,284,408	26	725,925	137,955	86,764	36,065	19,236	1,005,945	29	1,556,005	11,436	40,762	5,105	18,659	1,631,967	113	**5,922,320**	1917
1918	75	226,108	2,034,997	954,498	152,689	17,248	3,385 540	29	662,829	358,491	313,196	47,904	21,818	1,404,238	30	1,729,622	24,724	98,965	15,979	18,301	1,887,591	134	**6,677,369**	1918
1919	75	240,208	1,521,897	1,146,943	169,300	30,016	3,108,364	30	437,341	107,924	163,530	54,596	12,075	775,466	28	526,794	27,613	37,989	6,242	109,642	707,280	133	**4,591,110**	1919
1920	80	199,829	1,026,862	830,538	112,178	32,869	2,202,276	35	533,122	510,350	148,122	67,744	20,417	1,279,755	28	742,829	76,222	44,048	12,389	37,990	913,478	143	**4,395,509**	1920
1921	30	105,084	416,958	182,272	90,845	9,034	804,193	27	596,200	13,116	28,305	11,425	10,225	659,271	27	1,057,510	10,397	37,029	7,513	29,060	1,141,509	84	**2,604,973**	1921
1922	57	121,652	1,313,280	425,947	128,023	5,777	1,994,679	36	567,576	331,005	88,321	36,623	8,930	1,032,455	28	1,386,169	13,261	48,228	9,666	16,897	1,474,221	121	**4,501,355**	1922
1923	67	178,962	2,257,768	434,490	129,990	12,857	3,014,067	39	441,774	197,291	72,821	32,940	11,537	756,363	30	1,257,594	77	19,834	822	14,583	1,292,910	136	**5,063,340**	1923
1924	65	192,806	1,686,884	799,215	110,002	8,259	2,797,166	38	442,876	892,667	192,901	68,883	10,593	1,607,920	31	814,042	33,517	35,067	2,322	14,889	899,837	134	**5,305,923**	1924
1925	62	151,140	1,701,849	835,599	94,539	12,493	2,795,611	37	364,721	402,801	199,797	68,267	19,289	1,054,875	30	549,429	590	29,999	1,393	18,992	600,403	129	**4,450,898**	1925
1926	61	173,891	2,158,699	618,397	96,389	10,679	3,058,055	43	630,505	1,144,180	243,808	104,309	23,683	2,146,485	28	1,352,691	35,470	40,238	1,829	18,114	1,448,342	132	**6,652,882**	1926
1927	62	115,664	581,728	224,696	114,331	9,131	1,045,823	47	320,159	833,028	253,410	138,243	42,948	1,587,788	29	884,740	....	29,262	55	18,404	932,461	138	**3,566,072**	1927
1928	60	106,793	2,137,796	566,689	145,323	5,596	2,962,197	62	431,924	643,816	378,499	152,066	32,567	1,638,872	29	1,405,344	3,852	46,316	497	13,032	1,469,041	151	**6,070,110**	1928
1929	59	161,580	1,541,463	290,742	97,850	6,982	2,098,617	70	455,997	1,028,790	498,873	68,538	36,526	2,088,544	30	1,075,473	253	71,261	5,862	30,232	1,183,081	159	**5,370,242**	1929
1930	57	216,743	2,296,270	283,553	155,844	10,894	2,963,304	68	270,310	839,751	281,111	170,741	32,123	1,594,036	27	361,734	14,631	31,336	3,403	20,543	431,647	152	**4,988,987**	1930
1931	41	148,485	2,038,388	277,225	88,841	14,926	2,567,865	49	439,572	940,124	193,131	81,275	27,567	1,681,669	25	1,107,725	....	66,553	92	8,631	1,183,001	115	**5,432,535**	1931
1932	31	140,356	1,380,093	582,290	88,293	23,637	2,214,669	34	659,539	720,893	145,660	60,363	32,317	1,618,772	22	1,304,832	15,587	93,178	695	12,755	1,427,047	87	**5,260,488**	1032
1933	38	81,122	1,477,608	425,869	95,629	8,130	2,088,358	31	486,528	703,696	207,363	64,548	23,792	1,485,927	23	1,614,721	2,139	25,013	1,456	9,084	1,652,413	92	**5,226,698**	1933
1934	47	104,413	2,622,186	393,904	159,509	15,606	3,295,618	45	707,754	1,198,457	307,649	74,832	27,005	2,315,697	22	1,813,835	1,959	33,502	1,219	8,756	1,859,271	114	**7,470,586**	1934
1935	46	159,506	2,209,373	541,152	141,501	11,496	3,063,028	44	391,088	1,045,155	302,011	47,198	24,338	1,809,790	9	272,581	....	9,567	219	641	283,008	99	**5,155,826**	1935
1936	46	219,531	2,959,774	784,455	136,043	22,105	4,121,908	46	839,243	1,598,585	295,956	80,608	31,820	2,846,212	24	1,423,781	30,911	26,572	1,581	3,983	1,486,828	116	**8,454,948**	1936
1937	45	165,170	2,138,264	503,235	86,912	30,613	2,924,194	47	459,399	1,480,658	190,425	42,028	31,234	2,209,744	24	1,476,585	376	35,454	138	7,547	1,520,100	116	**6,654,038**	1937
1938	39	189,880	1,886,104	473,619	140,791	16,339	2,706,733	42	484,518	1,336,000	253,905	75,596	20,146	2,170,165	17	1,848,725	....	59,335	345	6,241	1,914,646	98	**6,791,544**	1938
1939	48	195,907	1,474,269	293,316	65,906	2,364	2,031,762	47	657,198	1,034,623	237,148	37,250	21,023	1,987,242	24	1,118,233	627	95,948	....	5,399	1,220,207	119	**5,239,211**	1939
1940	46	125,462	1,452,037	484,476	155,577	1,539	2,219,091	42	384,266	1,441,266	343,072	126,878	18,359	2,314,475	11	443,653	14,088	32,991	1,675	2,405	494,812	99	**5,028,378**	1940
1941	47	137,861	3,631,491	321,118	193,751	1,812	4,286,033	44	413,658	1,005,029	333,618	159,023	30,825	1,942,153	19	613,369	129	55,771	3,439	5,609	678,317	105	**6,906,503**	1941
1942	47	121,083	1,758,741	597,373	189,210	2,033	2,668,779	44	352,475	1,051,359	328,860	180,698	34,916	1,948,308	7	438,111	8,550	16,556	2,629	6,178	472,024	98	**5,089,109**	1942
1943	34	85,313	1,042,610	672,359	92,245	1,868	1,894,395	34	582,287	1,277,915	167,809	66,311	37,421	2,131,743	14	1,314,575	1,532	42,410	178	11,676	1,370,371	81	**5,396,509**	1943
1944	38	131,580	1,081,334	655,188	88,380	1,765	1,958,247	45	461,718	1,002,056	286,498	96,255	29,718	1,876,245	13	987,459	3,932	44,039	2,418	5,456	1,043,304	94	**4,877,796**	1944
1945	41	129,514	1,039,521	265,845	107,425	2,582	1,544,887	43	434,872	1,198,665	331,654	85,506	30,041	2,080,738	8	609,132	1,623	92,551	3,103	9,086	715,495	92	**4,341,120**	1945
1946	41	59,029	999,443	321,037	94,074	1,612	1,475,195	48	350,728	1,053,605	257,909	96,301	25,356	1,783,899	20	656,141	4,073	38,209	2,686	10,906	712,015	108	**3,971,109**	1946
1947	40	56,032	680,693	260,666	72,434	4,019	1,073,844	47	470,056	1,034,475	196,731	74,388	34,790	1,810,430	21	1,350,151	8,449	42,814	1,893	14,885	1,418,192	107	**4,302,466**	1947
1948	39	39,317	683,972	403,959	165,033	5,973	1,298,254	57	318,638	616,822	291,977	69,259	34,774	1,331,470	24	1,277,508	3,250	78,725	7,507	13,898	1,380,888	120	**4,010,612**	1948
1949	36	39,485	2,102,604	243,080	125,059	1,046	2,511,274	55	391,244	580,438	221,089	59,409	37,213	1,289,393	21	529,859	....	44,140	4,411	11,974	590,384	112	**4,391,051**	1949
Avg..	**41**	**92,467**	**1,447,244**	**422,510**	**128,319**	**2,425**	**2,093,000**	**46**	**415,994**	**1,026,163**	**275,922**	**101,403**	**31,341**	**1,850,885**	**16**	**821,996**	**4,562**	**48,820**	**2,994**	**9,207**	**887,580**	**103**	**4,831,465**	**Avg.**

NOTE:—Figures for the various species in each district not available prior to 1896, nor from 1901 to 1904, inclusive. District totals for years prior to 1887 may be found in issues of the YEARBOOK prior to 1943.
"Average" is for ten years through 1949.

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Vice President, General Fish Co.

Vice President, Win-Ra Fisheries, Inc.

SALMON
PUGET SOUND

Fish-price controversies, with a strike in the fall, restricted production on Puget Sound; but the Sockeye run was very fair, and the Pink pack, though less than in 1947, brought the total to the second largest in 18 years.

More Pinks and Chums came from Alaska. Most of the Chum pack was of Canadian fish, but the supply from that source was far short of the previous year.

Puget Sound's biennial Pink run was not quite up to the big one of the cycle-year 1947, but over-all production gave some ground for satisfaction — though it may not have seemed so to many fishermen, whose catches were split up among an enormous number of boats, including many from points as distant as Cordova and Kodiak.

Total pack was almost double the previous year's, with an increase of 440,655 cases, and came within 15,263 cases or 1.7% of the big 1947 output; being, except for that, the largest since 1931. Everything except Pinks and Sockeyes, however, fell off quite abrupty from the 1948 figures.

Much Fish From Alaska And British Columbia

As in the two previous years, the total was swelled considerably by canning of British Columbia fish, together with substantial quantities from Alaska. Definite figures on the amounts of fish from these sources are not available, but it is roughly estimated that they came to something like 175,000 full cases or 20% of the total. This includes over 13,000 Alaska Reds listed as Sockeyes, leaving the Puget Sound Sockeye pack little more than 80,000 cases; also some 15,000 cases of Pinks, perhaps 25,000 Chums and over 2,500 Kings from Alaska; and from British Columbia well over 100,000 cases of Chums, about 10,000 Pinks and a few Cohoes and Kings.

Sockeye Pack Restricted

Thus the actual Sockeye pack was about 5,000 cases less than the previous year, but still some 27,000 cases or 51% ahead of the cycle-year 1945. It is interesting to note that this is the same cycle as the great run of 1913, from which production continued relatively large as late as 1941; and last year's run could no doubt have produced much more but for conservation measures of the International Sockeye Commission, which permitted the early run to escape — opening the Puget Sound season July 19, a day later than in 1948, and increasing the weekly closed time.

Production was also held down by price controversy, which caused loss of the first week's fishing; the packers' offer of 20c per lb. for Sockeye, 10c for Pinks and 12½c for Cohoes (on the grounds) being accepted July 25. There was an enormous concentration of gear, 253 purse seines, over 100 reefnets and record numbers of gillnets being licensed.

Pinks Short of 1947

Almost the entire Pink pack is, of course, an increase over 1948; but compared with the year before it went down 81,686 cases or almost 13%; the drop in *Puget Sound* Pinks being about 16½%. Except for 1947, however, the Pink total was the best in the last eight cycles.

Pinks commenced to show before the end of July, and the run built up gradually through August, with considerable fluctuation, coming to a moderate peak in early September.

About this time considerable surplus fish from Southeast Alaska commenced to come down; and as the Alaska season closed the Sound fleet was greatly augmented by boats from the north. Many seiners tried Cape Flattery fishing, but had limited success as the fish were swimming too deep for their gear.

Admiralty Inlet waters were opened for a time, and produced quite well. A striking feature of the Pink run was the heavy catch of the Port Susan gillnet fleet working on the Stillaguamish run, which continued active through a long season — clear into October — though the open area was greatly reduced in mid-September, and "round-haul" fishing, long prevalent in that locality, was banned Oct. 1.

Most of the Pink run had passed by Sept. 23, and few seiners continued beyond that date. The Pinks were fine large fish, running about 14 or 15 to the case.

Fall Fishing Curtailed By Price Controversy

Price controversy between fishermen and buyers culminated at the opening of the fall season, Oct. 5, in a strike which tied up most operations for three weeks, with entire loss of the main Coho season. Canneries were picketed, preventing the canning even of Alaska and British Columbia fish for at least a week.

With a weakening canned salmon market, packers said they could not pay more than 8c for Chums, 15c for Cohoes. Seiners finally accepted an offer from fresh fish buyers of 14

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1949—PUGET SOUND CANNED SALMON PACK—1949

	Company	Cannery Location	Sockeye or Red			Pink			Chum			Coho or Silver			Chinook or King				
			1-Lb. Talls, Etc.	½-Lb. & ¼-Lb. Flats (48 Lbs. net)	Total	1-Lb. Talls, Etc.	½-Lb. Flats (48 Lbs. net)	Total	1-Lb. Talls, Etc.	½-Lb. Flats (48 Lbs. net)	Total	1-Lb. Talls, Etc.	½-Lb. & ¼-Lb. Flats (48 Lbs. net)	Total	1-Lb. Talls, Etc.	½-Lb. Flats (48 Lbs. net)	Total	Grand Total (Full Cases)	
1	Alaska Packers Association	Semiahmoo	......	6,794	6,794	29,784	......	29,784	205	......	205	1,665	......	1,665	......	......	......	38,448	1
2	Anacortes Canning Co.	Anacortes	16	3,509	3,525	17,066	1,351	18,417	35	105	140	440	635	1,075	60	225	285	23,442	2
3	Beach Packing Co.	Friday Harbor (a)	2	256	258	(p) 2,337	839	3,176	(p) 1,247	......	1,247	(p) 254	2	256	(p) 17	5	22	4,959	3
4	Bugge Canning Co., Inc.	Sequim	......	12	12	......	348	348	......	41	41	......	110	110	......	......	......	511	4
5	Burke Canning Co., Inc.	Bellingham (b)	......	1,691	(c) 1,691	11,760	3,807	15,567	26,720	77	26,797	245	161	406	21	26	47	(b) 44,508	5
6	Columbia River Pkrs. Assn., Inc.	Bellingham	2	(n) 10,556	10,558	48,945	999	49,944	673	......	673	13	(n) 4,977	4,990	247	19	266	66,431	6
7	Dressel-Collins Fish Co.	Seattle	63	5,331	(c) 5,394	19,890	8,495	28,385	2,794	445	3,239	1,259	413	1,672	......	......	......	38,690	7
8	Dungeness Crab, Inc.	Anacortes	......	626	626	2,155	545	2,700	......	......	......	37	213	250	......	......	......	3,576	8
9	Farwest Fishermen, Inc.	Anacortes (a)	849	6,101	6,950	40,192	8,534	48,726	4,381	1,087	(c) 5,468	3,174	906	4,080	92	38	130	65,354	9
10	Fishermen's Federation, Inc.	(Various) (d)	......	......	......	1,853	......	1,853	2,804	......	2,804	1,338	314	1,652	......	......	......	(d) 6,309	10
11	Fishermen's Packing Corp.	Anacortes	170	(o) 11,832	12,002	68,835	29,635	98,470	1,027	254	1,281	6,363	5,782	12,145	160	905	1,065	124,963	11
12	Friday Harbor Canning Co.	Friday Harbor (a)	(p) 38	4,056	4,094	(p) 19,578	7,025	26,603	(p) 1,381	......	1,381	(p) 4,285	23	4,308	(p) 205	62	267	36,653	12
13	Haines Oyster Co.	Seattle (b, z)	2,500	......	2,500	624	......	624	5,000	......	5,000	848	......	848	......	......	......	8,872	13
14	John C. Jackson, Inc.	Friday Harbor	......	947	947	......	7,883	7,883	......	209	209	......	531	531	......	509	509	10,079	14
15	Keller Fishing & Packing Co.	Deer Harbor	392	4,218	4,610	35,714	3,760	(c) 39,474	5,935	......	(c) 5,935	3,072	87	3,159	343	84	427	(b) 53,605	15
16	Nelbro Packing Co.	Point Roberts (d)	......	......	......	492	......	492	21,549	......	21,549	......	......	......	......	......	......	22,041	16
17	New England Fish Co.	Everett	169	3,921	4,090	22,528	1,133	23,661	18,359	377	18,736	3,269	744	4,013	1,400	......	1,400	51,900	17
18	Oceanic Fisheries Co., Inc.	Seattle (d)	484	47	531	4,876	......	4,876	......	......	......	234	......	234	......	......	......	5,641	18
19	Pacific American Fish., Inc.	Bellingham & Friday Hbr. (a)	(p) 23	1,914	1,937	(p) 10,524	2,887	13,411	(p) 170	......	170	(p) 1,003	27	1,030	(p) 395	93	488	17,036	19
20	Pacific Packing Co.	Anacortes (e)	5,539	183	(c) 5,722	14,953	......	14,953	514	......	514	921	......	921	42	......	42	22,152	20
21	Parks Company	Bellingham (f)	......	......	......	1,904	1,338	3,242	22,677	......	22,677	11	94	105	......	......	......	(f) 26,025	21
22	Perfection Smokery	Seattle	......	......	......	......	......	......	......	350	350	......	......	......	......	......	......	350	22
23	Reefer King Co.	Seattle (d)	......	2,378	(g) 2,378	......	......	......	......	371	(g) 371	......	......	......	......	2,536	(g) 2,536	(d, g) 5,285	23
24	Sea-Pac Co., Inc.	Bellingham	109	......	109	2,519	......	2,519	354	......	354	596	......	596	......	......	......	3,578	24
25	Sebastian-Stuart Fish Co.	Anacortes	3,138	2,346	5,484	31,505	14	31,519	482	......	482	3,582	......	3,582	110	......	110	41,177	25
26	Smith Seafoods, Inc.	Anacortes	......	2,280	2,280	......	5,370	5,370	......	5	5	......	(m) 696	696	......	......	......	8,351	26
27	Washington Fish & Oyster Co.	Seattle	215	2,628	2,843	27,553	5,214	32,767	15,895	1,495	17,390	110	2,181	2,291	......	......	......	(h) 55,291	27
28	Whiz Fish Products Co.	La Conner	329	8,963	9,292	38,342	8,634	46,976	156	358	514	2,553	2,742	5,295	......	......	......	62,077	28
29	Canadian Interests	(Custom Canned)*	......	......	......	6,000	......	6,000	25,000	......	25,000	......	......	......	1,000	......	1,000	32,000	29
	TOTAL		**14,038**	**80,589**	**(c) 94,627**	**459,929**	**97,811**	**557,740**	**157,358**	**5,174**	**162,532**	**35,272**	**20,638**	**55,918**	**4,092**	**4,502**	**8,594**	**879,403**	

NOTE—As in 1947 and 1948, a great part of the Chum pack on Puget Sound, and small quantities of the Pinks and Chinooks, were made from British Columbia fish; and some Alaska Reds, Pinks and Chums are also included in the pack.

*Figures on the bottom line of table are estimates only, representing salmon custom-canned on Puget Sound for British Columbia operators, and for which no definite reports have been available.

(a) Packs of Beach Packing Co., Friday Harbor Canning Co., and part of Pacific American Fisheries and Farwest Fishermen's packs made through joint operation in Friday Harbor Packing Co.'s plant. (b) Includes salmon custom-canned for others, not shown elsewhere in this table. (c) Includes some Alaska fish; thus the Puget Sound pack is known to include at least 10,976 full cases of Alaska Reds—4,137 Talls and 6,839 Halves—tabulated with Sockeyes, leaving the actual Puget Sound Sockeye pack about 81,151 full cases.

(d) All custom-canned by others. (e) Formerly operated by Chase Packing Co. (f) All custom-canned in plant of Burk Canning Co., Inc. (g) All Alaska fish. (h) Includes no salmon custom-canned for others.

(m) Includes 667 full cases ¼-lbs., 48 lbs. net. (n) Columbia River Packers Association's pack included 2,507 full cases of Sockeyes and 286 Cohoes in ¼-lbs., tabulated as halves. (o) Includes 208 full cases ¼-lbs., 48 lbs. net. (p) Included in the joint pack of the Friday Harbor cannery were 4-lb. cans (included with Talls in the tabulation) totaling 2 cases of Sockeyes; 5,804 Pinks; 1,303 Chums; 1,597 Cohoes and 28 Chinooks, distributed in the tabulation among the Friday Harbor, Pacific American and Beach Packing Co. packs.

(z) Includes some fish canned at Bay Center in the Washington Coast area; also some fish custom-canned for others and not covered elsewhere in this table.

and 20c and resumed fishing Oct. 26, but from then on very few Puget Sound fish found their way into cans.

As the season advanced, various British Columbia operators shipped large quantities of Chums to the Sound. The Chum run in southern British Columbia, however, was very light, and these shipments were by no means as large as in 1948.

The total Chum pack fell off more than 80,000 cases or 34% from 1948, but was otherwise the largest since 1919, being about 17% above 1947.

Drop in Cohoes and Chinooks

There was practically no early canning—only a few frozen Chums from Canada; the price of troll Cohoes after the opening June 15 being much too high. It is therefore rather astonishing that the pack of this species was more than double the average of ten years ending 1946—though it dropped more than 14,000 cases or 21% from 1948, and 30.3% from the year before.

The Chinook pack also was rather remarkable under the conditions, although when Alaska Kings are eliminated there were only about 6,000 cases. This is only 22.4% of the previous year's figure, a drop of 20,985 cases, and 21% of the 1947 pack; but almost double the previous ten-year average.

Puget Sound Chum and Sockeye Salmon Catch By Gear, 1935-48

CHUM						YEAR	SOCKEYE					
INSIDE WATERS				PACIFIC OCEAN*	**Total Number of Fish Caught**		INSIDE WATERS				PACIFIC OCEAN*	**Total Number of Fish Caught**
GILL NET	PURSE SEINE	REEF NET	INDIAN FISHERY‡	PURSE SEINE, ETC.			GILL NET	PURSE SEINE	REEF NET	INDIAN FISHERY‡	PURSE SEINE, ETC.	
39,535	670,660	1,575	3,658	88	**715,516**	1935	9,606	520,249	5,530	....	80,404	**615,849**
243,952	518,954	3,225	17,230	736	**784,097**	1936	19,150	412,678	18,984	986	2,287	**454,085**
79,524	672,630	8,397	8,310	150	**769,011**	1937	43,419	766,966	58,814	1,074	28,038	**808,311**
71,193	702,996	7,811	20,177	9	**802,186**	1938	77,247	1,305,167	24,424	....	2,493	**1,409,331**
35,108	243,590	6,086	46,122	20	**330,926**	1939	16,371	470,919	58,841	1,456	9,462	**557,049**
65,321	469,053	4,855	83,043	203	**622,475**	1940	58,180	511,489	80,152	2,438	4,463	**656,722**
73,015	526,266	4,466	69,445	42	**673,234**	1941	43,534	1,338,236	164,789	1,653	12,271	**1,560,483**
55,928	546,567	5,158	36,425	....	**644,078**	1942	36,974	2,748,287	136,874	725	13,363	**2,936,223**
19,856	334,109	1,369	40,860	46	**396,240**	1943	5,296	155,824	35,047	420	48,011	**244,598**
27,678	235,091	1,365	56,171	446	**320,751**	1944	19,685	263,851	42,565	22	115	**326,238**
55,504	311,107	2,955	51,071	6	**420,643**	1945	31,990	605,406	80,098	920	11,758	**730,172**
70,729	1,125,227	14,920	40,058	5	**1,250,939**	1946	48,473	3,162,177	125,696	1,207	255	**3,337,808**
52,473	547,536	2,817	26,842	32	**624,094**	1947	3,212	69,794	10,377	536	6,198	**90,117**
93,233	812,635	10,607	19,996	13	**936,484**	1948	70,392	933,880	80,646	1,666	455	**1,087,039**

* Pacific Ocean catch consists mainly of purse seine fish, but includes a few taken by trolls.
‡ Includes salmon taken by traps, drag seines and set nets within the boundaries of Indian reservations.

PUGET SOUND CHINOOK SALMON CATCH BY GEAR, 1935-1948

YEAR	INSIDE					OUTSIDE		**Total Number of Fish Caught**	YEAR
	GILL NET	PURSE SEINE	REEF NET	TROLL	INDIAN FISHERY*	PURSE SEINE	TROLL		
1935	44,041	25,784	640	674	4,898	15,657	140,938	**232,632**	1935
1936	48,345	17,957	791	633	11,063	6,374	230,271	**315,434**	1936
1937	37,903	25,289	1,193	838	4,720	10,178	199,571	**279,692**	1937
1938	34,367	17,359	1,034	433	5,163	153	116,902	**175,411**	1938
1939	34,887	17,573	1,986	669	5,933	2,385	122,402	**185,835**	1939
1940	48,195	14,877	2,019	655	5,047	4,298	231,264	**306,355**	1940
1941	43,958	20,940	1,339	113	5,819	11,543	175,174	**258,886**	1941
1942	20,206	17,005	2,051	3	2,748	5,071	158,498	**205,582**	1942
1943	30,480	20,368	1,442	1,034	3,267	12,964	154,741	**224,296**	1943
1944	37,460	18,826	1,496	2,504	7,507	1,150	98,783	**167,726**	1944
1945	45,239	29,734	2,268	1,550	8,710	2,859	118,394	**208,754**	1945
1946	23,975	28,545	4,692	336	3,526	338	219,990	**281,402**	1946
1947	22,191	14,537	1,705	668	3,726	5,008	197,348	**245,183**	1947
1948	21,104	19,973	1,464	428	3,092	426	144,938	**191,425**	1948

* Includes salmon taken by drag seines, set nets, and traps within the boundaries of Indian reservations.

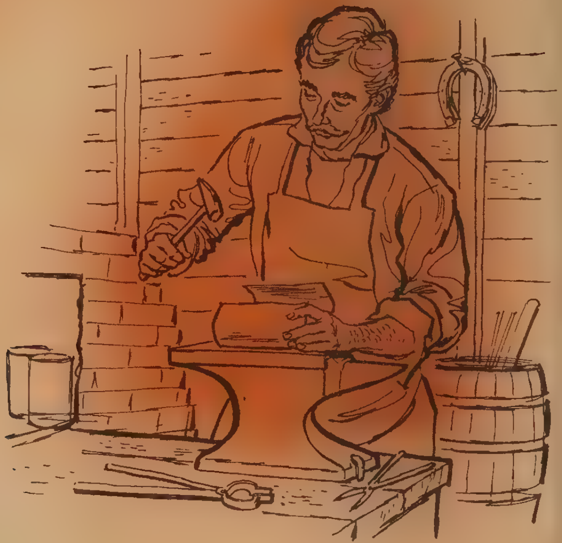
Puget Sound Silver Salmon Catch by Gear — 1935-1948

YEAR	INSIDE					OUTSIDE		**Total Numbers of Fish Caught**	YEAR
	GILL NET	PURSE SEINE	REEF NET	TROLL	INDIAN FISHERY*	PURSE SEINE	TROLL		
1935	114,172	441,625	8,738	6,715	4,247	436,943	432,251	**1,444,691**	1935
1936	76,873	145,857	10,981	7,686	5,499	212,202	305,695	**764,793**	1936
1937	83,584	245,544	9,395	3,449	5,889	260,805	198,203	**806.869**	1937
1938	138,474	150,541	21,448	2,837	7,919	4,814	174,437	**500,470**	1938
1939	98,949	232,101	11,251	3,333	12,851	204,526	218,607	**781,618**	1939
1940	100,316	130,607	12,627	2,312	14,899	127,551	279,832	**688,144**	1940
1941	104,383	141,283	8,265	102	21,731	326.879	255,679	**858,322**	1941
1942	48,179	109,118	8,894	....	9,172	32,386	120,356	**328,105**	1942
1943	45,379	154,453	10,701	946	6,482	275,661	104,257	**597,879**	1943
1944	128,660	148,371	9,123	915	11,993	1,394	44,917	**345,373**	1944
1945	113,892	237,432	9,847	528	17,247	121,536	73,619	**574,101**	1945
1946	70,481	108,768	11,750	384	11,896	180	86,726	**290,185**	1946
1947	126,410	286,301	22,066	249	17,405	82,110	200,551	**735,098**	1947
1948	111,974	240,254	33,779	277	19,336	11,643	278,902	**696,165**	1948

*Includes salmon taken by drag seines, set nets, and traps, within the boundaries of Indian reservations.

FISH STORY
worth retelling

85 years ago, the fish-canning industry was . . .



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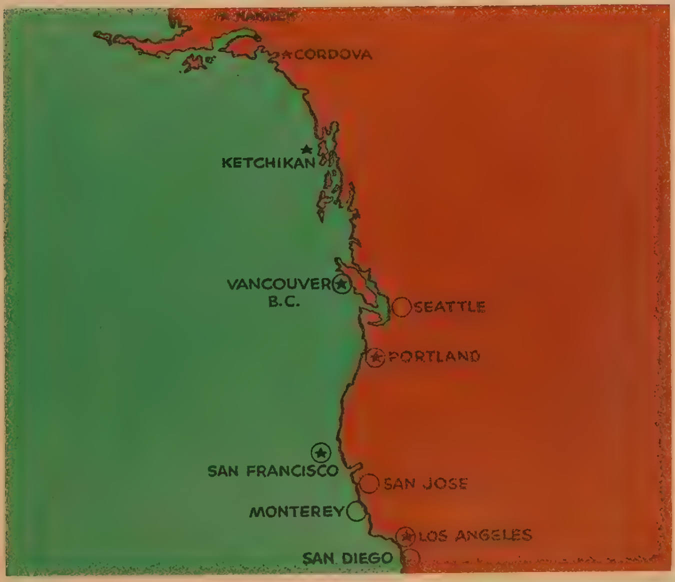
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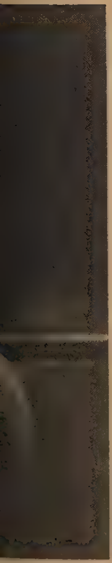

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PUGET SOUND CANNED SALMON PACK, 1888 TO 1949

Puget Sound salmon canning commenced in 1877 with a pack of 5,500 cases, but no segregation by species is available prior to 1889. From the beginning production increased, with much fluctuation, to 22,000 cases in 1887; the average for intervening years being 7,867 cases. Values shown are based on opening prices. "Average" figures at bottom of table are for last ten years.

Year	No. of Plants Operated	Sockeye		Pink		Chum		Coho		Chinook		Steelhead		Total		Year
		Cases	Value	Cases	Value	Cases	Value	Cases	Value	Cases	Value	Cases	Value	Cases	Value	
1888	4	...	...	...	...	...	...	...	...	...	...	...	...	21,975	$126,356	1888
1889	2	...	...	2,809	$7,584	1,145	$3,435	7,480	$37,400	240	$1,200	...	...	11,674	49,619	1889
1890	1	...	...	...	...	4,000	12,000	3,000	15,000	1,000	5,000	...	...	8,000	32,000	1890
1891	2	5,538	$24,921	5,647	15,246	3,093	10,825	5,869	19,368	382	2,101	...	...	20,529	72,461	1891
1892	2	2,954	11,816	...	...	16,180	56,630	7,206	24,500	86	473	...	...	26,426	93,419	1892
1893	3	47,852	103,371	17,530	47,331	11,380	31,295	11,812	59,060	1,200	6,480	...	...	89,331	247,537	1893
1894	3	41,781	188,014	9,049	24,432	22,152	60,918	22,418	89,672	...	...	...	...	95,400	363,036	1894
1895	7	65,143	273,108	23,633	62,556	38,785	94,741	50,865	154,218	1,542	7,325	...	...	179,968	591,948	1895
1896	11	72,979	350,299	...	...	26,550	73,013	82,640	264,448	13,495	67,475	...	...	195,664	755,235	1896
1897	12	312,048	1,248,192	57,268	171,804	23,310	64,103	91,900	282,133	9,500	39,045	...	...	494,026	1,805,277	1897
1898	18	252,000	1,058,400	...	...	38,400	105,600	98,600	335,240	11,200	50,624	...	...	400,200	1,549,864	1898
1899	19	499,646	2,368,334	252,733	734,241	31,481	86,427	111,387	418,176	24,364	103,180	...	...	919,611	3,170,358	1899
1900	19	228,704	1,149,000	...	...	89,100	245,025	128,200	512,800	22,350	134,100	...	...	469,450	1,940,925	1900
1901	..	1,105,096	...	275,494	...	...	...	...	...	...	...	...	...	1,380,590	...	1901
1902	21	339,556	2,047,655	...	...	93,492	467,460	85,817	429,085	30,049	150,245	...	...	548,914	3,094,445	1902
1903	22	167,211	1,003,260	181,236	407,984	12,001	30,002	103,450	413,800	14,500	72,500	...	...	478,398	1,929,546	1903
1904	13	123,419	653,871	...	...	49,656	124,254	118,127	447,851	14,441	69,352	...	...	305,643	1,295,328	1904
1905	24	847,122	4,952,718	70,992	212,976	41,057	102,643	79,335	337,174	1,804	9,922	...	...	1,040,310	5,615,433	1905
1906	16	182,241	1,251,236	...	...	149,218	708,781	94,497	472,485	8,139	48,834	...	...	430,602	2,481,336	1906
1907	14	93,122	698,416	433,423	1,300,269	50,249	150,847	119,472	476,288	1,814	16,326	...	...	698,080	2,642,146	1907
1908	22	170,951	1,196,657	6,075	18,225	47,607	142,821	128,922	644,922	95,210	666,470	...	...	448,765	2,669,095	1908
1909	11	1,097,904	6,183,300	370,993	902,342	53,688	128,916	143,133	630,446	13,019	72,604	...	...	1,632,949	7,917,608	1909
1910	24	248,014	1,673,095	108	388	146,942	514,297	162,755	895,153	10,064	60,324	...	...	567,883	3,143,256	1910
1911	15	127,761	1,168,145	1,046,992	4,302,344	104,321	392,122	256,124	1,591,185	21,823	172,582	...	...	1,557,021	7,727,524	1911
1912	20	184,680	1,660,173	700	2,185	60,760	154,193	149,727	761,200	20,252	101,706	...	...	416,125	2,679,457	1912
1913	22	1,673,099	10,871,178	791,886	2,092,401	56,225	124,970	61,019	235,372	1,234	5,247	...	...	2,583,463	13,329,168	1913
1914	31	335,230	3,208,969	892	4,212	278,801	955,920	151,893	759,689	26,044	167,322	...	...	792,860	5,095,839	1914
1915	41	64,584	676,769	583,649	1,795,285	411,724	155,744	180,783	902,335	28,466	145,555	...	...	1,269,206	4,675,418	1915
1916	32	84,637	699,161	1,887	8,264	427,878	1,492,161	155,832	957,650	37,030	280,708	...	...	707,278	3,437,944	1916
1917	45	411,538	5,366,218	1,124,884	7,823,960	216,285	1,362,634	114,276	1,065,983	57,543	540,904	...	...	1,921,554	16,159,699	1917
1918	32	50,723	781,992	6,605	53,336	267,538	1,715,159	235,860	2,532,553	63,366	753,026	106	$1,611	624,198	5,837,677	1918
1919	35	64,346	1,186,413	421,215	3,854,113	525,541	1,687,787	210,883	2,618,504	68,542	829,384	5,076	81,584	1,295,626	12,257,785	1919
1920	11	62,654	1,725,252	4,669	28,860	48,849	3,225,368	24,502	221,688	25,846	370,215	...	...	166,520	2,571,385	1920
1921	23	102,967	1,991,368	404,713	1,870,385	30,831	123,608	89,412	798,541	25,567	199,609	...	...	653,490	4,983,511	1921
1922	16	48,566	945,178	2,225	13,273	65,552	283,395	111,771	744,656	20,615	222,641	...	...	248,729	2,209,143	1922
1923	18	47,402	860,000	475,849	2,429,800	97,081	471,790	122,000	785,000	15,777	150,233	29	174	758,138	4,696,997	1923
1924	12	69,369	1,182,358	5,945	39,192	134,360	651,014	87,879	688,950	19,968	215,019	128	1,024	317,649	2,777,557	1924
1925	23	112,023	2,098,683	553,904	3,179,302	43,345	207,546	173,215	1,902,289	29,061	430,641	122	1,708	911,670	7,820,169	1925
1926	14	44,673	532,408	2,107	15,095	112,204	573,411	123,469	1,163,286	27,859	364,610	113	1,216	310,425	2,650,026	1926
1927	21	97,594	2,115,410	578,923	3,669,941	38,129	225,654	135,802	1,358,020	41,716	587,258	80	1,056	892,244	7,957,339	1927
1928	14	60,081	1,207,981	5,597	41,091	146,356	833,114	89,923	777,472	23,153	291,943	266	2,873	325,376	3,154,024	1928
1929	22	111,898	2,203,496	727,621	4,639,076	156,683	911,584	101,635	1,044,372	33,720	436,181	287	3,597	1,131,844	9,238,306	1929
1930	12	352,194	4,890,921	3,712	18,486	64,234	237,123	122,691	1,240,876	29,378	403,466	397	4,446	572,606	6,795,318	1930
1931	18	83,728	1,316,348	705,580	2,486,377	55,189	177,000	76,025	569,699	28,066	290,579	293	2,443	948,881	4,842,446	1931
1932	10	78,319	897,006	1,677	5,779	146,151	381,116	60,740	330,385	23,964	168,193	60	432	310,911	1,782,912	1932
1933	19	125,738	1,340,000	543,340	2,643,528	37,039	171,742	44,568	292,684	20,869	220,000	222	1,776	771,776	4,669,910	1933
1934	21	340,787	3,632,587	3,296	17,331	72,841	251,991	69,080	517,901	14,089	74,024	...	...	500,093	4,493,834	1934
1935	14	51,714	720,076	369,620	1,652,161	15,636	68,402	70,514	534,956	9,243	91,396	...	...	516,727	3,066,991	1935
1936	9	60,063	813,510	1,152	7,598	86,070	315,465	30,568	292,528	4,708	43,427	...	...	182,561	1,472,528	1936
1937	13	56,983	925,160	327,973	1,676,692	18,759	91,696	31,747	323,976	6,412	76,750	...	...	441,874	3,094,274	1937
1938	13	139,152	1,824,396	455	2,641	7,697	32,193	10,268	100,753	2,371	36,800	...	...	159,943	1,996,783	1938
1939	14	43,561	669,202	282,271	1,574,317	15,080	76,786	54,905	485,760	2,446	33,508	...	...	398,263	2,839,573	1939
1940	9	62,748	1,122,684	2,947	17,432	23,405	114,798	30,654	231,878	1,674	15,734	...	...	121,428	1,502,526	1940
1941	9	110,758	2,140,457	153,924	1,203,657	25,423	187,224	46,213	553,230	4,769	62,354	...	...	341,087	4,146,922	1941
1942	10	258,488	5,255,888	851	7,965	2,223	17,748	6,862	97,693	1,204	26,389	...	...	269,628	5,405,683	1942
1943	10	19,149	424,339	62,129	637,730	243	2,432	26,292	390,847	2,864	12,456	...	...	110,677	1,467,804	1943
1944	3	37,214	830,719	299	3,313	...	...	373	5,883	1,064	21,240	...	...	38,950	861,155	1944
1945	6	53,532	1,176,467	305,245	2,724,176	1,184	12,467	18,802	258,076	3,639	63,511	...	...	382,402	4,234,697	1945
1946	20	271,311	10,108,350	91	2,184	47,099	989,079	7,118	163,714	6,496	259,840	345	8,280	332,460	11,531,447	1946
1947	25	7,516	315,956	639,426	13,423,416	139,131	2,532,194	79,450	2,254,404	29,143	875,098	...	...	894,666	19,401,068	1947
1948	22	91,268	5,005,792	4,645	128,328	245,133	5,558,820	70,659	2,049,606	27,043	903,578	...	...	438,748	13,646,124	1948
1949	23	*94,627	2,959,425	557,740	9,305,100	162,532	2,381,000	55,910	1,273,000	8,594	224,000	...	...	879,403	16,142,525	1949
Avg.	**14**	**100,411**	**2,934,007**	**172,667**	**2,745,330**	**64,137**	**1,179,576**	**34,148**	**727,833**	**8,649**	**246,420**	**34**	**828**	**380,047**	**7,833,995**	**Avg.**

* Includes 10,976 cases Alaska Reds.

PUGET SOUND PINK SALMON CATCH BY GEAR — 1935-1948

Year	Inside					Outside		Total Number of Fish Caught	Year
	Gill Net	Purse Seine	Reef Net	Troll	Indian Fishery*	Purse Seine	Troll		
1935	84,739	4,833,480	75,213	181	...	817,166	13,572	**5,824,351**	1935
1936	4	5,954	32	...	...	18,442	249	**24,681**	1936
1937	461,122	3,440,741	159,611	579	105,738	901,346	16,327	**5,085,464**	1937
1938	4,345	3,452	68	...	...	28	...	**7,893**	1938
1939	671,956	3,012,365	191,410	1,175	68,938	113,041	5,726	**4,064,611**	1939
1940	241	4,694	54	...	...	20,896	41	**25,926**	1940
1941	258,414	1,053,921	89,742	...	49,588	564,829	4,222	**2,020,716**	1941
1942	16	1,357	523	...	...	12,374	7	**14,277**	1942
1943	179,508	500,734	59,845	33	17,056	213,233	2,499	**972,908**	1943
1944	62	4,016	173	...	...	11	25	**4,287**	1944
1945	302,935	5,119,791	260,482	46	85,557	122,412	1,013	**5,892,236**	1945
1946	13	162	5	...	8	28	4	**220**	1946
1947	572,378	7,646,633	630,839	14	69,794	87,380	8,337	**9,015,375**	1947
1948	24	141	36	...	1	...	92	**294**	1948

* Includes salmon taken by drag seines, set nets, and traps, within the boundaries of Indian reservations

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Chairman, Salmon Canners' Operating Committee

SALMON
COLUMBIA RIVER

1949—COLUMBIA RIVER CANNED SALMON PACK—1949

			Chinook						Silverside			Blueback	Chum	Steelhead Trout				
			Fancy				Choice, Standard and Pale											
	Company	Cannery Location	1-Lb. Flats and Talls	½-Lb. Flats (8 doz.)	¼-Lb. Flats (48 lbs. net)	Total	1-Lb. Talls and Flats	½-Lb. and ¼-Lb. Flats (48 lbs. net)	Total	1-Lb. Talls	½-Lb. and ¼-Lb. Flats (48 lbs. net)	Total	½-Lb. and ¼-Lb. Flats (48 lbs. net)	1-Lb. Talls & ½-Lb. Flats (48 lbs. net)	1-Lb. Talls and Flats	½-Lb. and ¼-Lb. Flats (48 lbs.)	Total	Grand Total (Full Cases)	
1	Barbey Packing Corporation	Astoria, Ore.	....	....	....	....	....	3,283	3,283	....	....	....	....	....	....	225	225	3,508	1
2	Chinook Packing Company	Chinook, Wash.	....	....	....	....	287	5,066	5,353	28	824	852	1	1,008	....	....	....	7,214	2
3	Columbia Riv. Packers Assn., Inc.	Astoria, Ore.	....	34,970	1,786	36,756	4,866	(a) 22,251	27,117	273	(a) 12,852	13,125	(a) 84	4,966	27	(i) 3,399	3,426	85,474	3
4	Columbia River Salmon Co., Inc.	Astoria, Ore. & Ilwaco, Wn.*	....	4,272	782	5,054	....	2,146	2,146	....	382	382	(b) 2	....	....	258	258	7,842	4
5	Keystone Packing Co.	Ilwaco, Wash.	753	4,736	....	5,489	....	....	....	12	83	95	6,250	....	....	....	....	11,834	5
6	New England Fish Co.	Astoria, Ore.†	....	2,355	....	2,355	....	2,994	2,994	....	21	21	1	....	....	1	1	5,372	6
7	Paragon Packing Co.	Astoria, Ore.	....	....	....	....	(c) 543	352	895	254	....	254	(d) 52	894	....	....	....	2,095	7
8	Point Adams Packing Co.	Hammond, Ore.	(e) 421	4,021	31	4,473	(f) 1,084	3,413	4,497	19	609	628	....	3,500	(e) 207	366	573	13,671	8
9	Portland Fish Co.	Portland, Ore.	....	887	....	887	....	921	921	....	605	605	81	755	....	743	743	3,992	9
10	Sebastian-Stuart Fish Co.	Astoria, Ore.	....	439	....	439	....	60	60	....	....	....	....	....	....	....	....	499	10
11	Seufert Brothers Co.	Seufert, Ore.	(g) 934	918	....	1,852	(g) 3,448	936	4,384	....	....	....	149	(g) 120	(g) 1,390	2,208	3,598	10,103	11
12	Union Fishermen's Co-op. Pkg. Co.	Astoria, Ore.	....	....	....	....	(h) 7,295	(h) 17,097	24,392	448	(h) 330	778	(h) 10	1,143	....	195	195	26,518	12
	TOTAL		**2,108**	**52,598**	**2,599**	**57,305**	**17,523**	**58,519**	**76,042**	**1,034**	**15,706**	**16,740**	**6,630**	**12,386**	**1,624**	**5,808**	**9,019**	**178,122**	

*New cannery. †Pack made through joint operation in plant of Barbey Packing Corp.

Note—(a) The following Quarters (counted 48 lbs. to case) are included with Halves in the Columbia River Packers Assn.'s pack: choice and standard Chinooks, 1,852 cases; Silvers, 8,663 cases; Bluebacks, 84 cases; and their Steelhead Halves include 43 cases Ovals. (b) Quarters, 48 lbs. (c) Includes 103 cases in 4-lb. cans. (d) Includes 17 full cases Quarters. (e) All 1-lb. Flats and Ovals. (f) Includes 1,051 cases in 1-lb. Flats. (g) The Seufert pack includes (with Talls) the following in 1-lb. Flats: fancy Chinooks, 934 cases; choice and standard Chinooks, 122 cases; Steelheads, 18 cases. This company s Chum pack includes 47 full cases Halves. (h) Union Co-Op. pack includes (with Chinook talls) 1,150 cases 1-lb. Flats and 834 Ovals; (with Chinook Halves) 2,038 full cases Quarters; (with Silver Halves) 255 full cases Quarters; and Bluebacks are all in Quarters (48 lbs.) Of their Steelheads (48/2), 137½ full cases were smoked. (i) Steelhead Quarters, 1,587 cases (48 lbs.), are included with Halves as follows: C.R.P.A., 1,283; Columbia River Salmon Co., 63; Point Adams, 241.

Columbia River operators in 1949 worked under no such physical handicap as the previous year, when a disastrous flood stalled their efforts for fully two months; yet their salmon production slumped to a new low level, closely in line with 1943-44-45; and the frequent recurrence of such failures is a source of growing alarm.

Never since 1870, except in 1949 and the three other seasons mentioned, has this area's production fallen below 200,000 cases. Without looking to old-time high records for comparison, last year's pack was little over one-third of that in 1941, and less than 40% of 1942; and it fell off 146,120 cases or 45% from the 1948 output.

The drop extended to all varieties except Bluebacks, and most of the latter were Quinault River fish from the Washington Coast district. Columbia River Bluebacks alone made only a small "token" pack of a few hundred cases, against 3,339 the year before; the summer closed period being designed to prevent most Blueback fishing in hope of building up the depleted run.

Chinooks Down 43½%

Greatest decline in actual quantity was in Chinooks, which comprised three-fourths of the total and of which, even with the small pack, the Columbia supplied almost 70% of the United States total (against an average of 80%). The Chinook pack went down 101,963 cases or 43.4% from 1948 and was little more than half that of the year before, being the third-smallest on record.

Silverside production fell to 42½% of the previous year's pack and less than two-thirds of the average and, though larger than in several other recent seasons, was otherwise the smallest in 46 years.

Market conditions offered little inducement for canning fall Chums, and the pack fell to the lowest point in four years—down 13,815 cases or 52.7% from the year before, and less than 40% of average; while the Steelhead output was less than 10,000 cases for the first time since 1913, with a drop of 10,958 cases or about 55%, and was only 42% of average.

Season Is Curtailed

The operating season was much shorter than usual, being legally curtailed, as in 1948, by the June-July closure, and by advancing the winter closed period 15 days to Dec. 1; at the same time putting on a 36-hour weekly closure through the fall. In addition, price disagreement between packers and gillnetters caused a general suspension for 24 days ending Aug. 12—so that the amount of time lost was closely comparable to that of the flood year.

From all indications there were not many fish in the river during the midsummer shutdown, though independent Indian dipnetters at Celilo, up the river, reaped quite a harvest. Drag-seining, previously permitted on the Oregon side, was prohibited by an initiative law passed the previous fall, but two seining grounds were worked at least part of the season under a court injunction, pending settlement of a test suit.

Early catches, after the May 1 opening, were generally light, as expected, and fell off after the first week. Gillnetters near the mouth of the river had considerable trouble with snags, whose appearance was variously attributed to the previous year's flood and to an earthquake in April; and a good many boats quit fishing in the latter part of May.

1949 - PACIFIC CANNED SALMON PACKS AND VALUES - 1949

District	Red, Sockeye or Blueback		Pink		Chum		Coho or Silver		King or Chinook and Steelhead		Total	
	Cases	Value	Cases	Value	Cases	Value	Cases	Value	Cases	Value	Cases	Value
Alaska	960,588	$25,581,995	2,683,042	$44,147,496	508,309	$ 7,498,382	188,879	$ 3,781,482	50,233	$ 1,402,934	4,391,051	$ 82,412,289
Washington	105,955	3,429,577	557,116	9,305,100	164,825	2,491,130	59,825	1,377,027	19,895	572,110	907,616	17,174,944
Oregon	379	12,466	....	....	11,389	170,880	15,848	392,860	132,351	3,585,794	159,956	4,162,000
Total U. S.	1,066,922	$29,024,038	3,240,158	$53,452,596	684,512	$10,160,392	264,552	$ 5,551,369	202,479	5,560,838	5,458,623	103,749,233
British Columbia*	259,880	8,576,000	709,217	12,000,000	226,241	2,900,000	214,939	5,199,000	23,446	596,000	1,433,723	29,271,000
GRAND TOTAL	1,326,802	$37,600,038	3,949,375	$65,452,596	910,753	$13,060,392	479,491	$10,750,369	225,925	$ 5,876,278	6,892,346	$133,020,233

*British Columbia values are roughly approximate only. Other values calculated on basis of initial prices.
NOTE—Steelhead is combined with Chinook in above table.

Annual Landings of Columbia River Chinook Salmon, 1935-1948

(Pounds of Fish Landed)

YEAR	WASHINGTON			OREGON			TOTAL		GRAND TOTAL	YEAR
	Inside Catch	Outside Catch	Total (Pounds)	Inside Catch	Outside Catch	Total (Pounds)	Inside Catch	Outside Catch		
1935	4,178,455	41,395	4,219,850	10,951,942	212,911	11,164,853	15,130,397	254,306	**15,384,703**	1935
1936	3,669,381	332,778	4,002,159	11,995,416	649,151	12,644,567	15,664,797	981,929	**16,646,726**	1936
1937	5,060,726	197,890	5,258,616	13,372,100	357,291	13,729,391	18,432,826	555,181	**18,988,007**	1937
1938	3,287,242	116,726	3,403,968	9,203,673	168,902	9,372,575	12,490,915	285,628	**12,776,543**	1938
1939	3,994,032	180,261	4,174,293	9,529,944	193,834	9,723,828	13,524,026	374,095	**13,898,121**	1939
1940	3,816,659	255,169	4,071,828	9,703,848	328,136	10,031,984	13,520,507	583,305	**14,103,812**	1940
1941	6,483,035	415,694	6,898,729	16,731,545	830,514	17,562,059	23,214,580	1,246,208	**24,460,788**	1941
1942	5,879,548	389,099	6,268,647	12,802,407	336,103	13,138,510	18,681,955	725,202	**19,407,157**	1942
1943	3,173,340	122,662	3,296,002	8,281,457	239,077	8,520,534	11,454,797	361,739	**11,816,536**	1943
1944	4,723,839	288,992	5,012,831	9,282,761	516,094	9,798,855	14,006,600	805,086	**14,811,686**	1944
1945	4,025,483	321,465	4,346,948	8,939,563	1,014,944	9,954,507	12,965,046	1,336,409	**14,301,455**	1945
1946	4,394,038	578,521	4,972,559	9,792,239	1,057,735	10,849,974	14,186,277	1,636,256	**15,822,533**	1946
1947	5,436,474	489,047	5,925,521	11,724,803	585,483	12,309,286	17,161,277	1,164,067	**18,234,807**	1947
1948	....	....	4,117,113	....	....	12,355,495	....	....	**16,472,608**	1948
1948	4,673,889	434,701	5,108,590	12,560,687	534,877	13,095,564	17,234,576	969,578	**18,204,154**	1948

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SALMON
WHITE MEAT TUNA FLAKES
SHAD ROE
SMOKED SHAD

SMO-KING Brand
SMOKED SALMON

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POINT ADAMS PACKING COMPANY
HAMMOND • OREGON

SALMON
COLUMBIA RIVER

The spring season opened with Chinooks at 20c per lb. but, with returns so scant, fishermen demanded a 7c increase for the midsummer period. Fishing was resumed in July without price agreement, but a good many boats did not go out, and all were tied up after a couple of weeks of very disappointing catches.

Work was finally resumed under an agreement providing for *minimum* prices for Chinooks of 20½c per lb. from the May 1 opening through Aug. 10 and 17½c to the Aug. 26 closure; 12½c for Silvers throughout the season, and 13c for Steelheads from June 15.

August Run Is Light

Very fair catches were made on resumption of fishing Aug. 12, with some improvement as the month advanced, and the last week's deliveries before Aug. 26 were fairly heavy; but the usual big August run failed to develop, and many operators pronounced the season the poorest in their experience.

The fall season opened Sept. 10 with Chinooks at 11c per lb.; Silvers and Steelheads as before. Initial catches were good but not notable, averaging about 1,000 lbs. in the lower river; but fell off rapidly after the first two days. After that many fishermen hung their nets and some canneries shut down, though most of them continued to pack what few fish were offered—mostly Silvers and Chums, the runs of which were below normal—until the close Dec. 1.

COLUMBIA RIVER CANNED SALMON PACK, 1888 - 1949

Salmon canning on the Columbia River commenced in 1866, with a pack of about 4,000 cases valued at $64,000; but no segregation by species is available prior to 1889. Production increased rapidly to a peak of 629,400 cases in 1883, valued at $3,147,000; then fell to 356,000, valued at $2,124,000, in 1887: the average output for intervening years being 351,091 cases, valued at $2,066,227. The "average" figures at bottom of table are for ten years through 1949.

Year	Number of Canneries	Chinook		Blueback		Silverside		Chum or Keta		Steelhead Trout		Total		Year
		Cases	Value	Cases	Value	Cases	Value	Cases	Value	Cases	Value	Cases	Value	
1888....	28	...	...	...	...	...	...	...	...	...	...	372,477	$2,234,862	1888
1889....	21	266,697	$1,600,182	17,797	$101,051	...	...	...	...	25,391	$108,587	309,885	1,809,820	1889
1890....	21	335,604	1,946,087	57,345	290,069	...	...	...	...	42,825	171,300	435,774	2,407,456	1890
1891....	22	353,907	2,038,566	15,482	284,242	...	...	...	...	29,564	118,156	398,953	2,440,964	1891
1892....	24	344,267	1,996,388	66,547	372,909	4,176	$20,880	...	...	72,348	288,892	487,338	2,679,069	1892
1893....	24	288,773	1,559,374	30,459	152,295	29,107	116,428	2,311	$6,933	65,226	260,904	415,876	2,095,934	1893
1894....	24	351,106	1,896,976	43,814	224,430	42,758	171,032	...	...	52,422	209,688	490,100	2,501,126	1894
1895....	24	444,909	2,428,658	18,015	86,523	99,601	329,683	22,493	62,591	49,678	203,542	634,696	3,110,997	1895
1896....	24	370,943	1,804,511	16,983	81,518	44,108	141,145	...	...	49,663	198,652	481,697	2,261,826	1896
1897....	22	432,753	1,804,221	12,972	51,888	60,850	197,762	...	...	46,146	165,440	552,721	2,219,311	1897
1898....	23	329,566	1,490,394	66,670	300,015	65,431	222,465	...	...	26,277	60,352	487,933	2,073,226	1898
1899....	17	255,824	1,458,175	23,969	134,723	29,608	112,055	11,379	33,836	11,994	39,186	332,774	1,777,975	1899
1900....	16	262,392	1,821,258	13,162	92,184	44,925	202,163	17,696	63,706	20,597	102,985	358,772	2,282,296	1900
1901....	..	...	...	...	...	...	...	...	...	...	...	390,183	1,942,660	1901
1902....	14	270,580	1,428,743	17,037	86,465	10,532	44,732	10,401	41,604	8,593	42,965	317,143	1,644,509	1902
1903....	16	301,762	1,610,614	8,383	42,867	12,181	49,869	10,000	37,500	7,251	36,255	339,577	1,777,105	1903
1904....	20	320,378	1,944,690	12,911	78,048	31,254	118,357	20,693	52,691	9,868	48,892	395,104	2,242,678	1904
1905....	19	327,106	1,962,636	7,768	46,608	26,826	114,011	25,751	65,206	9,822	49,110	397,273	2,237,571	1905
1906....	19	311,334	1,868,007	7,816	54,712	41,446	124,338	27,802	69,505	6,500	32,500	394,898	2,149,062	1906
1907....	19	258,433	...	5,504	...	31,757	...	22,556	...	5,921	...	324,171	1,763,490	1907
1908....	14	210,096	...	8,581	...	31,432	...	16,884	...	10,726	...	253,341	1,380,708	1908
1909....	15	162,131	1,203,546	27,908	214,561	42,178	185,070	24,542	57,115	17,283	99,796	274,087	1,760,088	1909
1910....	15	244,285	1,882,137	6,234	34,287	68,922	363,688	66,538	232,883	5,436	31,203	391,415	2,544,198	1910
1911....	15	405,862	2,204,185	5,988	47,904	79,416	549,478	53,471	203,198	8,594	47,399	543,331	3,052,164	1911
1912....	15	220,317	1,988,526	8,210	85,384	31,842	177,248	18,699	46,590	6,958	22,108	285,666	2,319,856	1912
1913....	15	192,116	1,664,670	11,152	93,677	40,969	175,412	13,303	29,486	8,939	49,142	266,479	2,012,387	1913
1914....	17	289,464	2,573,502	35,311	376,124	69,769	380,666	49,285	205,541	10,792	59,356	454,621	3,595,989	1914
1915....	19	406,486	3,694,361	5,459	56,707	33,336	173,234	86,530	251,632	26,723	129,358	558,534	4,305,292	1915
1916....	20	395,166	3,572,203	3,790	27,288	52,084	335,114	77,766	307,483	18,999	118,987	547,805	4,361,075	1916
1917....	20	403,637	5,023,529	7,968	111,552	64,299	700,680	53,659	386,596	23,783	292,538	555,218	6,530,939	1917
1918....	20	400,952	5,222,983	37,833	605,328	98,145	1,072,843	29,846	215,669	24,605	350,071	591,381	7,466,924	1918
1919....	21	392,125	5,455,550	7,268	145,360	90,728	1,142,767	75,493	541,989	14,414	205,254	580,028	7,490,920	1919
1920....	22	420,467	5,661,580	2,617	62,808	27,024	257,806	18,792	99,564	12,645	116,859	481,545	6,198,617	1920
1921....	20	267,582	3,761,321	6,045	120,900	34,381	233,372	4,821	19,791	10,142	68,266	323,241	4,203,649	1921
1922....	23	237,230	3,724,393	30,743	614,860	90,437	633,935	8,844	47,130	24,920	186,675	392,174	5,206,993	1922
1923....	23	289,586	4,967,657	38,309	766,180	101,554	673,954	25,508	135,168	25,968	187,965	480,925	6,730,924	1923
1924....	22	293,716	4,508,236	7,366	129,840	112,308	992,865	57,748	303,356	29,734	285,107	500,872	6,219,404	1924
1925....	21	350,809	5,423,129	5,650	106,220	113,554	1,488,855	55,812	272,398	14,637	177,866	540,452	7,468,468	1925
1926....	21	295,302	4,744,131	21,736	434,720	97,142	1,027,597	32,853	181,216	32,690	356,418	479,723	6,744,064	1926
1927....	22	339,446	5,559,202	6,887	147,378	74,879	585,816	68,449	425,240	30,148	311,070	519,809	7,028,705	1927
1928 ...	24	251,404	4,355,218	4,814	100,131	49,136	478,355	124,953	747,619	16,339	222,139	446,646	5,903,462	1928
1929....	21	242,938	4,234,214	10,072	181,296	90,684	917,561	54,619	314,928	23,804	257,025	422,117	5,905,024	1929
1930....	21	281,346	4,092,810	9,823	194,460	110,430	1,156,042	11,371	43,324	16,535	171,541	429,505	5,658,177	1930
1931....	20	294,798	3,754,929	4,125	66,000	39,268	247,878	3,518	11,754	11,990	110,429	353,699	4,191,000	...1931
1932....	15	216,511	2,023,390	2,795	33,540	46,492	280,853	17,261	44,879	13,132	91,924	296,191	2,474,586	1932
1933....	14	251,157	2,719,303	6,921	96,894	36,430	263,190	24,398	107,351	17,805	142,440	336,711	3,329,178	...1933
1934....	13	251,068	2,630,152	6,869	82,428	65,428	536,731	24,455	92,608	14,901	121,000	362,721	3,462,919	1934
1935....	10	205,870	2,479,450	1,302	17,619	95,184	725,868	15,495	59,499	14,888	122,846	332,739	3,405,282	1935
1936....	11	220,188	2,964,058	9,837	137,718	36,541	303,263	30,597	110,149	19,282	317,867	316,445	3,833,055	...1936
1937....	11	291,343	4,256,819	7,526	126,436	69,801	725,996	30,592	138,309	17,568	189,734	416,830	5,437,294	1937
1938....	10	173,892	2,707,267	13,889	260,369	67,257	630,364	37,704	143,275	15,248	152,480	307,990	3,893,755	...1938
1939....	10	207,595	3,336,206	5,301	102,359	69,082	730,549	15,201	75,416	25,293	320,025	322,472	4,666,141	1939
1940....	11	244,570	3,785,681	23,974	471,530	59,737	623,681	25,282	125,420	33,436	373,514	386,999	5,379,826	1940
1941....	11	328,609	5,558,254	33,070	661,400	35,727	481,834	83,144	572,994	33,162	453,502	513,712	7.727,984	1941
1942....	12	274,750	5,692,929	23,256	625,230	26,541	497,070	118,051	911,538	21,803	429,678	464,401	8,156,445	1942
1943....	11	130,373	3,094,505	2,880	77,586	5,707	61,065	12,439	112,421	16,261	323,874	167,660	3,669,451	1943
1944....	10	163,047	3,714,591	758	20,342	12,210	137,072	1,525	11,590	19,222	375,838	196,762	4,259,433	1944
1945....	8	132,014	3,095,228	112	3,001	22,154	244,060	1,032	8,848	19,314	363,068	*175,670	3,723,456	...1945
1946 ...	11	159,872	5,940,740	9,726	369,588	6,883	206,490	†15,617	247,392	17,373	510,720	†209,471	7,274,939	1946
1947....	10	250,318	8,613,000	15,079	664,000	42,789	1,278,000	17,121	252,000	21,999	650,000	347,306	11,457,000	1947
1948....	12	235,310	9,342,000	3,339	147,000	39,425	1,099,000	26,201	498,000	19,977	615,000	324,242	11,701,000	1948
1949....	12	133,347	3,682,000	‡6,630	225,000	16,740	415,000	12,386	186,000	9,019	221,000	178,122	4,729,000	1949
Avg....	**10**	**205,221**	**5,252,000**	**11,882**	**326,000**	**26,791**	**504,000**	**31,280**	**291,620**	**21,156**	**431,619**	**296,334**	**6,808,000**	**...Avg.**

* Includes 1,044 cases of Pinks canned from Puget Sound fish.
† Includes 1,873 cases of Pinks canned from Puget Sound fish.

‡ Mostly Quinault River Bluebacks.

Alaska Packers Association's establishment at Semiahmoo, near Blaine, Wash., including salmon cannery, great warehouses, boatyard and base for Alaska operations.

CANNED SALMON PACK OF COASTAL AREAS (WASHINGTON, OREGON, CALIFORNIA), 1919 - 1949

YEAR	WASHINGTON					OREGON				CALIFORNIA	GRAND TOTAL (Full Cases)	YEAR
	BLUE-BACK	CHINOOK	SILVER AND STEELHEAD	CHUM AND PINK	TOTAL (Full Cases)	CHINOOK	SILVER AND STEELHEAD	CHUM	TOTAL (Full Cases)	TOTAL (Full Cases)		
1919	1,244	5,029	17,174	39,995	63,442	26,089	43,114	7,081	76,284	22,766	**162,492**	1919
1920	235	921	405	26	1,587	30,571	4,490		35,061	21,055	**57,703**	1920
1921	2,590	2,010	4,897	5,281	14,778	15,632	122		15,754	10,376	**40,908**	1921
1922	26,491	2,573	13,354	10,939	53,357	12,270	11,769	2,248	26,287	9,700	**89,344**	1922
1923	10,454	1,794	5,172	38,523	55,943	10,526	22,606	14,279	47,411	6,000	**109,354**	1923
1924	6,778	1,506	5,493	32,760	46,537	16,351	30,449	14,603	61,403	12,936	**120,876**	1924
1925	4,821	3,810	6,679	35,342	53,276	22,404	18,872	14,410	55,686	22,339	**131,301**	1925
1926	2,720	2,441	3,182	17,377	25,720	19,130	7,033	4,838	31,001	11,537	**68,258**	1926
1927	5,260	4,195	1,983	25,452	36,890	17,456	13,390	181	48,619	15,585	**101,094**	1927
1928	2,000	52	415	34,109	37,031	5,411	8,136	5,500	19,047	4,237	**60,515**	1928
1929	4,449	213	1,158	35,699	41,519	4,700	2,313	8,047	15,060	2,774	**59,353**	1929
1930	21,536	49	2,160	11,846	35,519	11,252	981		12,233	5,171	**52,995**	1930
1931	8,476	61	501	11,225	20,263	4,234		8,600	12,834	12,280	**45,377**	1931
1932	14,263	308	1,152	22,236	37,959	8,524			8,524	780	**47,263**	1932
1933	6,754	845	424	7,735	15,758	7,150		500	7,650	2,149	**25,557**	1933
1934	3,323	2,344	1,453	15,370	22,490	4,100		2,000	6,100	820	**29,410**	1934
1935	6,217	3,685	10,009	7,351	27,262	2,500		2,400	4,900	874	**33,036**	1935
1936	705	1,137	1,883	16,038	19,763			9,500	9,500		**29,263**	1936
1937	2,865	176	82	7,932	11,055	2,400			2,400	147	**13,602**	1937
1938	1,559			13,173	14,732						**14,732**	1938
1939				6,381	6,381			2,200	2,200		**8,581**	1939
1940	138	23	504	9,142	9,807	647	643	1,000	2,290		**12,097**	1940
1941	24			27,428	27,452	1,000	2,500	5,400	8,900	1,125	**37,477**	1941
1942	1,235			17,492	18,727	1,450	200	9,000	10,650		**29,377**	1942
1943		100	402	5	507	1,038			1,038	767	**2,312**	1943
1944		750	161	132	1,043	1,961	2,567		4,528	864	**6,435**	1944
1945		4,005	2,096	5,287	11,388					2,755	**14,143**	1945
1946	3,694	2,398	5,185	17,225	28,502	16,104	4,806	663	21,573	5,034	**55,109**	1946
1947	12,450	3,014	13,023	10,060	38,547	7,383	8,379		15,762	13,917	**68,226**	1947
1948	4,021	1,805	12,060	8,642	26,528	7,553	7,052		14,605	11,681	**52,814**	1948
1949	7,577	419	3,856	6,285	18,137	827	55		882		**19,019**	1949
Average	**2,914**	**1,251**	**3,729**	**10,170**	**18,064**	**3,796**	**2,618**	**1,606**	**8,023**	**3,614**	**29,701**	**Avg.**

NOTE:—All figures indicate "FULL CASES" on a common basis of 48 lbs. net, equivalent to 96 Halves or 192 Quarters; the bulk of the actual pack being in 1-lb. Talls and ½-lb. Flats.

For some previous years a few Puget Sound Pinks are included with Chums in the Washington Coast pack.

A few Steelheads are sometimes canned in these areas. Where they occur, they are included with Silvers.

The California pack consists almost entirely of Chinooks, but sometimes includes a few Silvers.

Average is for the last ten years.

WILLAPA HARBOR SALMON CATCH, 1935-1948

YEAR	CHINOOK			SILVER			CHUM TOTAL CATCH†	GRAND TOTAL (Numbers of Fish)	YEAR
	GILLNET	TROLL*	TOTAL FISH	GILLNET	TROLL*	TOTAL FISH			
1935	13,142	780	13,922	21,309	6,040	27,349	39,600	**80,871**	1935
1936	15,258	87	15,345	20,628	18	20,646	53,830	**89,821**	1936
1937	15,205		15,205	12,319		12,319	51,309	**78,833**	1937
1938	14,318		14,318	15,325		15,325	51,917	**81,560**	1938
1939	9,068	1	9,069	13,799	8	13,807	29,208	**52,084**	1939
1940	12,182	111	12,293	15,646	796	16,442	50,870	**79,605**	1940
1941	6,028	1,352	7,380	8,107	3,086	11,193	136,346	**154,919**	1941
1942	9,033	443	9,476	9,851	1,327	11,178	203,014	**223,668**	1942
1943	9,985	11	9,996	9,070	38	9,108	85,289	**104,393**	1943
1944	6,350	156	6,506	24,758	4,731	29,489	44,326	**80,321**	1944
1945	13,291	629	13,920	33,224	675	33,899	43,638	**91,457**	1945
1946	8,384	250	8,634	21,890	589	22,479	98,577	**129,690**	1946
1947	4,586	200	4,794	26,084	555	26,639	54,081	**36,514**	1947
1948	6,823	629	7,452	28,419	3,058	31,477	78,372	**117,301**	1948

*Troll Chinooks and Silvers were nearly all landed from "outside," but include a few in some years taken "inside."

†Practically all the Chums were caught "inside" with gillnets, but include a very few, in widely separated years, from "outside" trollers.

SALMON
COASTAL AREAS

With the keen edge of the previous "sellers market" dulled in 1949, salmon canning in the coastal districts of Washington and Oregon was greatly curtailed from the scale of several preceding seasons.

Less than 1,000 cases, nearly all Chinooks, was canned on the Oregon coast, where operations were on an exceptionally small scale: this section having produced over 14,000 cases in 1948. In California, whose pack for the previous three years averaged over 10,000 cases, no commercial production was reported.

The coastal total fell to 64% of the ten-year average: less than 20,000 cases for the first time in four years—only 36% of the previous year's output, and 28% of the big 1947 pack. The Washington coast, however, held above average and, if salmon shipped out for canning were included, was about even with 1948, though the pack actually canned in this district fell off 18,137 cases or about 32%.

Quinault Run Increases

Most interesting feature was the best run of Quinault Bluebacks in many years. The catch sold at $1.50 per fish and most, if not all of it was processed by the Mohawk Packing Co., Strand Fisheries Co. and Keystone Packing Co.—the latter concern operating at Ilwaco on the Columbia, and not included in the coastal tabulation. Counting its output of 12,500 halves or 6,250 full cases, the Quinault pack was the largest since 1932—three times that of 1948, 11% over the big 1947 figure, and five times the average of intervening years.

The Chinook output was almost negligible, the total for Washington and Oregon coasts amounting to little over 1200 cases — about one-tenth of the three preceding years; while Washington Coast Silvers, falling to one-third of the 1947-48 packs, were about average.

Grays Harbor fall Chums received less attention than for several years, but over 6,000 cases were canned.

Columbia River Blueback or Sockeye Salmon Landings 1935-1948

	Pounds of Fish Landed		
	Wash.	Ore.	Total Pounds
1935	7,621	38,069	45,690
1936	132,901	169,362	302,263
1937	89,000	245,641	334,641
1938	135,174	289,919	425,093
1939	71,360	199,064	270,424
1940	118,771	243,406	362,177
1941	157,364	347,901	505,265
1942	54,049	138,521	192,570
1943	30,829	116,173	147,002
1944	9,882	44,741	54,623
1945	2,887	5,786	8,673
1946	25,273	101,117	126,390
1947	154,838	543,469	698,307
1948	30,621	65,173	95,794

1949—CANNED SALMON PACK OF COASTAL AREAS—1949

	Company	Cannery Location	Blueback	Chinook			Silver or Coho			Chum			Grand Total (Full Cases)	
			½-Lb. Flats (8 doz.)	1-Lb. Talls	½-Lb. Flats (8 doz.)	Total (Full Cases)	1-Lb. Talls	½-Lb. Flats (8 doz.)	Total (Full Cases)	1-Lb. Talls	½-Lb. Flats (8 doz.)	Total (Full Cases)		
	WASHINGTON—													
1	Mohawk Packing Co.	Moclips	4,128	419	......	419	147	......	147	459	......	459	5,153	1
2	Nelson Crab & Oyster Co.	Tokeland	......	......	......	......	700	......	700	2,000	......	2,000	*2,700	2
3	Olympic Seafoods, Inc.	La Push	......	......	......	......	......	†40	†40	......	......	......	40	3
4	Strand Fisheries Co.	Hoquiam	3,449	......	......	......	......	......	......	......	......	......	3,449	4
5	Washington Fish Co.	Aberdeen	......	......	......	......	2,740	94	2,834	......	245	245	3,079	5
6	West Coast Fish Co.	Aberdeen	......	......	......	......	135	......	135	3,581	......	3,581	3,716	6
	Total Washington Coast		‡7,577	419	......	419	3,722	134	3,856	6,040	245	6,285	18,137	
	OREGON—													
1	New England Fish Co.	Newport	......	......	827	827	......	55	55	......	......	......	882	1
	TOTAL WASHINGTON-OREGON COAST		‡7,577	419	827	1,246	3,722	189	3,911	6,040	245	6,285	19,019	

NOTE—Little, if any, salmon was canned in California in 1949. *Estimated. †Steelheads packed on Indian Reservation. ‡About 6,000 full cases of Quinault Bluebacks were also canned on the Columbia River, and are included in the tabulation for that district.

GRAYS HARBOR SALMON CATCH, 1935-1948

YEAR	CHINOOK				SILVER				CHUM			PINK	GRAND TOTAL (Numbers of Fish)	YEAR
	Gillnet (Including Set Net)	Indian Fishery (a)	Troll(b)	Total Fish	Gillnet	Indian Fishery (a)	Troll(b)	Total Fish	Gillnet Etc. (c)	Indian Fishery (a)	Total Fish	Total Catch (d)		
1935	17,157	11,726	55,259	84,142	47,082	79,816	187,644	314,542	20,500	25,712	46 212	294	**445,190**	1935
1936	7,485	9,130	49,142	65,757	31,828	65,580	133,930	231,338	39,087	94,278	133,365	....	**430,460**	1936
1937	8,661	5,781	61,981	76,423	16,721	29,619	103,215	149,555	39,920	21,260	61,180	717	**287,875**	1937
1938	9,042	8,100	51,976	69,118	30,919	48,194	86,516	165,629	36,356	30,658	67,014	....	**234,747**	1938
1939	9,878	7,006	41,008	57,892	40,560	60,628	200,395	301,583	15,340	12,901	28,241	2,233	**389,949**	1939
1940	8,052	6,113	57,103	71,268	34,258	42,368	187,519	264,145	33,823	30,540	64,363	....	**399,776**	1940
1941	6,754	4,697	77,111	88,562	20,133	65,190	235,351	320,674	124,428	63,984	188,412	292	**597,940**	1941
1942	5,545	5,108	74,891	85,544	23,967	22,105	127,037	173,109	85,606	28,110	113,716	....	**372,369**	1942
1943	5,438	7,603	78,152	91,193	15,637	52,909	137,279	205,825	21,299	11,662	32,961	31	**329,010**	1943
1944	5,288	5,842	72,609	83,739	43,636	35,273	130,789	209,698	15,469	1,917	17,386	....	**310,823**	1944
1945	12,688	20,088	82,553	115,329	54,082	65,741	247,875	367,698	24,477	5,497	29,974	....	**513,001**	1945
1946	6,155	13,907	87,903	107,965	35,348	40,986	123,121	199,456	71,433	46,081	117,514	....	**424,935**	1946
1947	4,882	7,116	66,564	78,562	70,916	71,068	167,128	309,112	26,865	9,617	36,482	1,669	**426,825**	1947
1948	5,835	11,716	112,390	129,941	45,343	30,126	321,339	397,274	30,976	7,290	38,266	6	**565,487**	1948

(a) Indian fishery includes salmon taken by dip bag nets, drag seines, gillnets, set nets and purse seines within the boundaries of various Indian reservations

(b) Nearly all of the **troll** salmon was taken in "outside" (Pacific Ocean) waters.

(c) Chum salmon in this column include a few fish taken in some years by trollers in "outside" waters.

(d) Nearly all of the Pinks, caught only in odd-numbered years, were taken by trollers in "outside" waters, but include a few in some years from the Indian fishery.

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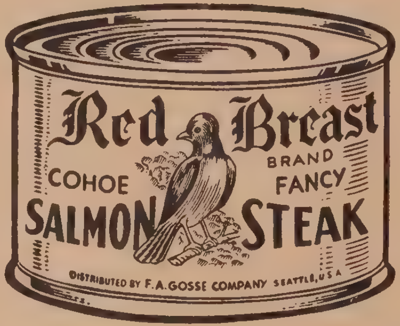
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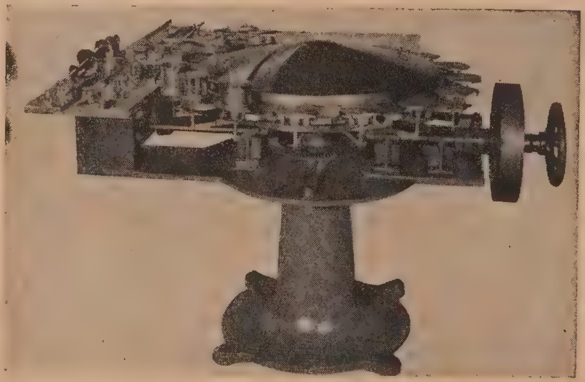

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British Columbia's canned salmon output, though below average, gained substantially over 1948, with the third-largest Pink pack on record; Sockeyes and Cohoes about even with the previous year.

Chum production, checked by market conditions and a light run, fell to the second-lowest figure in 28 years; much of the fall catch being again diverted to Puget Sound.

From the standpoint of total production, British Columbia's 1949 salmon season was fairly satisfactory, though the Sockeye output was somewhat disappointing. Pinks made a big pack, while Chum production, in contrast to the year before, was closely restricted; and Cohoes made the best showing in several years. The grand total stood 125,586 cases above 1948, but still was 90,899 below average.

Fraser Sockeye Run Improves

It wasn't one of the big-cycle years for Fraser River Sockeyes—that comes in 1950; but the Fraser pack was well ahead of 1948 and 1947, and almost even with the cycle-year 1945. Northern areas, however, fell down rather badly, leaving the total of Sockeyes about even with the previous year and almost 100,000 cases below normal.

Encouraging was the fact that the Fraser Sockeye *run* was greater than the pack indicated. To gain ample escapement to spawning areas such as Stuart Lake, the season in waters controlled by the International Pacific Salmon Fisheries Commission did not open in Canada till July 25. The early Sockeye run is described as extremely strong—perhaps the best since 1913—but the late opening permitted these fish to reach the spawning grounds, and

1949 — British Columbia Canned Salmon Pack — 1949

Districts and Canneries Operated	No. Canneries Operated	Sockeye (Full Cases)	Pink (Full Cases)	Chum (Full Cases)	Coho (Full Cases)	Blueback (Full Cases)	Spring (Full Cases)	Steelhead (Full Cases)	Grand Total (Full Cases)
District No. 1 (Fraser River and Howe Sound)	11	116,181	360,535	59,895	90,878	6,876	14,484	395	649,244
Anglo-B. C. Packing Co., Ltd.—"Phoenix"									
British Columbia Packers, Ltd.—"Imperial"									
Canadian Fishing Co., Ltd.—"Home"									
Colonial Packers, Ltd.—"Colonial"									
Great West Packing Co., Ltd.—"Great West"									
Johnston Fishing & Packing Co., Ltd.—"Glen Rose"									
Francis Millerd & Co., Ltd.—"Great Northern"									
National Fisheries, Ltd.—"National"									
Nelson Bros. Fisheries, Ltd.—"St. Mungo"									
Queen Charlotte Fisheries, Ltd.—"Bidwell Street"									
Tulloch Fisheries, Ltd.—"Tulloch"									
Skeena and Naas River Areas	6	80,722	131,510	42,329	64,835	....	3,088	1,362	323,846
Anglo-B. C. Packing Co., Ltd.—"North Pacific"									
British Columbia Packers, Ltd.—"Sunnyside"									
Canadian Fishing Co., Ltd.—"Carlisle"									
Cassiar Packing Co., Ltd.—"Caspaco"									
Nelson Bros. Fisheries, Ltd.—"Prince Rupert"									
J. H. Todd & Sons, Ltd.—"Inverness"									
Central Areas and Rivers Inlet	4	42,249	142,500	116,690	37,533	....	1,651	549	341,172
British Columbia Packers, Ltd.—"Namu"									
Canadian Fishing Co., Ltd.—"Butedale" and "Goose Bay"									
J. H. Todd & Sons, Ltd.—"Klemtu"									
District No. 3 (Vancouver Island, etc.)	4	20,728	74,672	7,327	14,817	....	1,842	75	119,461
Anglo-B. C. Packing Co., Ltd.—"Knight Inlet" and "Bones Bay"									
Canadian Fishing Co., Ltd.—"Nootka"									
J. H. Todd & Sons, Ltd.—"Empire"									
Grand Total	25	259,880	709,217	226,241	208,063	6,876	21,065	2,381	1,433,723

Note:—The figures tabulated are preliminary statistics, based on weekly compilations by the Canadian Fisheries Department they are subject to some later corrections. Figures on quantities canned in the various styles of package in British Columbia are not now available.

"District No. 1" in the tabulation includes the Fraser River, Howe Sound and waters around the mouth of the Fraser River. The "Central Area" include all canneries north of Rivers Inlet and south of the Skeena River area. "District No. 3" includes all of Vancouver Island and adjacent mainland between Cape Caution and Gower Point.

Figures represent all salmon CANNED in the several districts, regardless where caught.

PACIFIC CANNED SALMON PACKS AND VALUES 1939 TO 1949

Packs reduced to basis of full cases of 48 lbs. net. Values calculated from best data available.

YEAR	ALASKA		WASHINGTON		OREGON		CALIFORNIA		U. S. TOTAL		BRITISH COLUMBIA		GRAND TOTAL		YR.
	CASES	VALUE	CASES	VALUE	CASES	VALUE	CASES	VALUE	**Cases**	**Value**	CASES	VALUE	**Cases**	**Value**	
1939..	5,239,211	$ 35,110,571	478,246	$ 3,944,000	251,070	$ 3,640,898	....	$	**5,971,527**	**$ 42,695,469**	1,539,070	$ 10,449,945	**7,510,597**	**$ 53,145,414**	.1939
1940..	5,028,378	31,828,451	222,808	2,825,000	297,716	4,129,220	....	....	**5,548,902**	**38,782,681**	1,467,227	11,427,923	**7,016,129**	**50,209,908**	.1940
1941..	6,906,503	57,466,702	491,311	6,162,000	399,840	5,925,444	1,125	13,500	**7,798,779**	**69,567,646**	2,248,870	18,406,545	**10,047,619**	**87,974,191**	.1941
1942..	5,089,109	48,677,509	366,065	6,909,000	397,331	6,890,162	....	....	**5,852,515**	**62,476,671**	1,811,560	20,050,238	**7,664,075**	**82,526,909**	.1942
1943..	5,396,509	58,579,194	149,175	2,309,000	130,707	2,857,246	767	16,000	**5,677,158**	**63,761,440**	1,258,221	11,673,469	**6,935,379**	**75,434,909**	.1943
1944..	4,877,796	51,606,544	81,490	1,774,000	159,783	3,445,244	864	17,660	**5,119,943**	**56,843,448**	1,097,558	11,479,093	**6,217,521**	**68,322,541**	.1944
1945..	4,338,692	44,528,964	414,258	4,845,000	155,292	3,287,812	2,755	38,000	**4,913,335**	**52,699,776**	1,739,311	18,409,962	**6,652,646**	**71,109,738**	.1945
1946..	3,971,109	58,667,561	385,437	13,020,000	206,563	7,165,645	5,034	153,000	**4,568,149**	**79,006,206**	1,348,138	17,532,462	**5,916,287**	**96,538,668**	.1946
1947..	4,302,466	91,297,885	957,429	21,420,000	338,852	11,133,690	13,917	513,000	**5,612,664**	**124,364,575**	1,505,157	24,900,000	**7,117,379**	**149,264,575**	.1947
1948..	4,014,891	96,528,730	484,102	12,685,858	314,556	10,956,513	11,417	366,095	**4,824,966**	**120,537,196**	1,308,137	26,579,000	**6,133,103**	**147,116,196**	1948
1949..	4,391,051	82,412,289	907,616	17,174,944	159,956	4,162,000	....	....	**5,458,623**	**103,749,233**	1,433,723	29,271,000	**6,892,346**	**133,020,233**	.1949
Avg..	**4,831,465**	**62,576,171**	**445,969**	**8,912,480**	**256,059**	**5,995,297**	**3,588**	**111,716**	**5,537,503**	**77,177,987**	**1,524,622**	**18,930,019**	**7,059,251**	**96,151,787**	**Avg.**

Annual Landings of Columbia River Silver Salmon, 1935-48

(Pounds of Fish Landed)

YEAR	WASHINGTON			OREGON			TOTAL		GRAND TOTAL	YEAR
	Inside Catch	Outside Catch	Total (Pounds)	Inside Catch	Outside Catch	Total (Pounds)	Inside Catch	Outside Catch		
1935	640,339	484,883	1,125,222	1,529,297	2,623,373	4,152,670	2,169,636	3,108,256	**5,277,892**	1935
1936	340,955	600,489	941,444	805,110	784,802	1,589,912	1,146,065	1,385,291	**2,531,356**	1936
1937	549,058	407,752	956,810	887,003	1,082,753	1,969,756	1,436,061	1,490,505	**2,926,566**	1937
1938	789,446	870,029	1,659,475	1,525,920	1,342,178	2,868,098	2,315,366	2,212,207	**4,527,573**	1938
1939	441,559	697,324	1,138,883	1,090,063	1,109,575	2,199,638	1,531,622	1,806,899	**3,338,521**	1939
1940	373,744	652,139	1,025,883	999,762	971,460	1,971,222	1,373,506	1,623,599	**2,997,105**	1940
1941	264,602	277,640	542,242	791,417	606,288	1,397,705	1,056,019	883,928	**1,939,947**	1941
1942	171,664	361,743	533,407	472,896	101,176	574,072	644,560	462,919	**1,107,479**	1942
1943	194,399	297,945	492,344	510,950	124,227	635,177	705,349	422,172	**1,127,521**	1943
1944	405,423	588,991	994,414	1,187,811	286,637	1,474,448	1,593,234	875,628	**2,468,862**	1944
1945	511,797	378,383	890,180	1,361,389	233,891	1,595,280	1,873,186	612,274	**2,485,460**	1945
1946	317,444	486,258	803,702	740,988	478,010	1,218,998	1,058,432	964,268	**2,022,700**	1946
1947	404,659	834,669	1,239,328	1,054,530	598,695	1,653,225	1,459,189	1,433,364	**2,892,553**	1947
1948	283,705	1,052,803	1,336,508	891,449	407,885	1,299,334	1,175,154	1,460,688	**2,635,842**	1948

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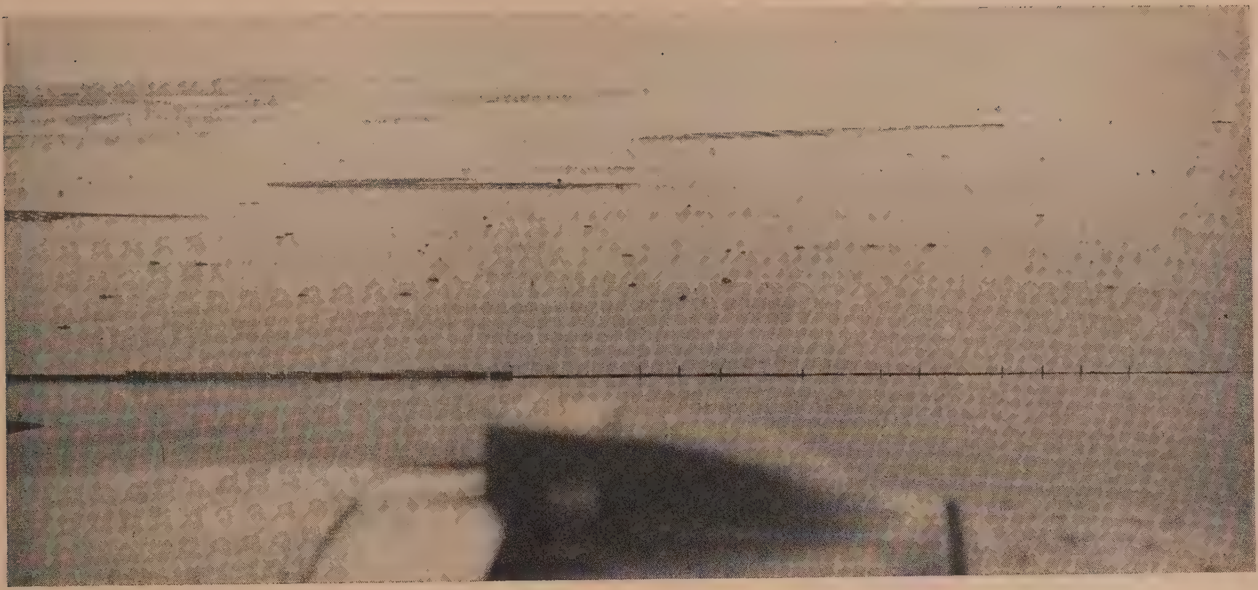

the results should be reflected in the 1953 pack. The pack made from *Fraser River* Sockeyes was actually much greater than during the same fishing period of 1945.

Pink Pack Heavy

As generally expected, it was a big season for Pinks—over 100,000 cases ahead of the cycle-year 1947; more than double 1948 and 260,000 cases or 61% above average, though 116,295 cases short of the big year 1945, which was second only to the all-time peak of 1,111,937 cases in 1930. Greatest factor was a good "big-year" run on the Fraser, though northern districts also made an excellent pack. Northern production was augmented by substantial imports of raw fish from Southeast Alaska, which had more than it could handle.

The limited market for Chums gave little inducement for canning. The run was light at many points, and a great part of the fall catch was again exported to the United States. Production was light in all districts, with scarcely more than a "token" pack except in the "outlying" areas of the north; and the total was less than half the big 1948 figure, the smallest since 1931, and fourth-smallest since 1915.

Cohoes exceeded the previous year's pack—which was about average—by 7,823 cases; while Springs made the largest pack in seven years; Bluebacks dropped back to about a normal level, and Steelheads hit the lowest mark since 1940.

Fewer Canneries Operate

The number of canneries operating was further reduced—23 against 27 in 1948—with twelve companies participating.

The season was twice interrupted by tie-ups of fishing boats: the first resulting from a dispute over allocation of the seiner catch, and the second from disagreement over division of the catch among seiners and gillnetters.

Minimum prices payable by canners to fishermen for the summer were set as follows (per pound):

Sockeyes, 18c; Cohoes, 14c; Pinks (Johnstone Strait and Fraser), 6½c; Pinks (Queen Charlotte Island), 6c; Pinks (Central, Northern), 6¼c; Chums (Johnstone Strait and Fraser), 5¾c; Chums (Central, Northern), 5½c; Chums (Queen Charlotte Island), 5¼c.

Two pictures on this page, taken Aug. 5, 1949, show the concentration of gillnet boats at the mouth of the Fraser River. Upper view, taken from plane flying eastward parallel to main channel, shows boats thick in the fairway. Breakwater is seen in foreground, Point Roberts, dimly, in left distance.

Below, looking east into mouth of the Fraser, shows massing of boats off the river's mouth. A section of the breakwater appears at left.

British Columbia Canned Salmon Pack -- 1903 to 1949

YEAR	SOCKEYES FRASER RIVER	SOCKEYES OTHER DISTRICTS	TOTAL SOCKEYES	RED SPRINGS	PINK SPRINGS	OTHER SPRINGS	TOTAL SPRINGS	COHOES AND BLUE-BACKS	STEEL-HEADS	PINKS	CHUMS	TOTAL CASES	YEAR
1903..........	204,809	163,908	368,717	25,657	....	....	25,657	51,918	....	27,382	....	473,674	1903
1904..........	72,688	250,536	323,226	38,675	....	....	38,675	66,351	....	....	37,642	465,894	1904
1905..........	837,489	243,184	1,080,673	28,359	....	....	28,359	44,458	....	13,970	....	1,167,460	1905
1906..........	183,007	276,672	459,679	31,261	....	1,083	32,344	69,132	....	68,035	....	629,460	1906
1907..........	59,815	254,259	314,074	23,159	....	2,939	26,098	87,900	683	118,704	....	547,459	1907
1908..........	63,126	291,897	355,023	25,433	....	2,731	28,164	81,917	1,137	76,448	....	542,689	1908
1909..........	542,248	298,193	840,441	18,218	....	799	19,017	61,918	....	46,544	....	967,920	1909
1910..........	133,045	432,870	565,915	19,313	....	9,476	28,789	74,382	140	34,613	58,362	762,201	1910
1911..........	58,487	325,022	383,509	38,751	....	9,705	48,456	119,702	100	305,247	91,951	948,965	1911
1912..........	108,784	335,778	444,762	62,345	....	18,092	80,437	165,102	207	247,743	58,325	996,576	1912
1913..........	684,596	287,582	972,178	37,433	....	3,616	41,049	69,822	....	192,887	77,965	1,353,901	1913
1914..........	185,483	351,213	536,696	32,908	....	16,420	49,328	120,201	....	220,340	184,474	1,111,039	1914
1915..........	89,040	387,002	476,042	51,734	....	6,370	58,104	146,956	2,927	367,352	82,000	1,133,381	1915
1916..........	27,394	187,395	214,789	51,231	....	15,495	66,726	183,623	9,082	280,644	240,201	995,065	1916
1917..........	123,614	116,234	339,848	48,630	....	27,646	76,276	157,589	11,740	496,749	475,273	1,497,475	1917
1918..........	16,849	259,610	276,459	65,535	....	41,819	107,354	191,068	15,916	527,745	497,615	1,616,157	1918
1919..........	29,628	339,817	369,445	73,179	9,077	18,295	100,551	199,993	4,493	346,639	372,035	1,393,156	1919
1920..........	44,598	306,807	351,405	95,983	8,441	13,877	118,301	120,033	2,395	520,856	84,626	1,187,616	1920
1921..........	35,900	128,014	163,914	36,725	6,061	6,966	49,752	124,348	1,220	192,906	71,408	603,548	1921
1922..........	48,744	250,870	299,614	21,163	11,913	6,520	39,596	109,276	1,657	581,979	258,204	1,290,326	1922
1923..........	29,423	305,224	334,647	17,539	4,858	4,745	27,142	119,141	1,760	440,932	418,055	1,341,677	1923
1924..........	36,200	333,403	369,603	17,659	3,355	6,442	27,456	119,989	1,811	657,538	568,916	1,745,313	1924
1925..........	31,523	361,120	392,643	39,142	4,419	29,938	73,499	199,180	1,996	445,400	607,904	1,720,622	1925
1926..........	83,589	253,406	336,995	41,276	4,177	23,736	69,189	181,894	2,165	772,993	701,962	2,065,198	1926
1927..........	57,085	250,947	308,032	34,029	8,819	16,129	58,977	181,968	1,746	247,617	562,109	1,360,449	1927
1928..........	26,530	177,011	203,541	11,002	2,328	5,526	18,856	156,757	865	792,362	863,256	2,035,637	1928
1929..........	60,407	220,899	281,306	8,295	3,156	7,926	19,377	196,444	672	477,969	424,982	1,400,750	1929
1930..........	107,896	369,782	477,678	20,184	6,650	11,970	38,804	190,594	1,656	1,111,937	401,114	2,221,783	1930
1931..........	54,688	236,776	291,464	17,526	4,727	4,894	27,147	102,175	1,326	206,995	55,997	685,104	1931
1932..........	83,447	200,908	284,355	46,953	14,133	14,974	76,060	188,971	1,168	223,716	306,761	1,081,031	1932
1933..........	53,481	204,626	258,107	12,464	1,849	5,953	20,266	159,052	1,459	532,558	293,630	1,265,072	1933
1934..........	145,579	232,303	377,882	15,281	1,644	12,859	29,784	225,430	1,282	435,364	513,184	1,582,926	1934
1935..........	76,415	274,029	350,444	10,187	3,114	8,619	21,920	231,492	596	514,966	409,604	1,529,022	1935
1936	165,651	249,373	415,024	16,493	2,527	10,834	29,854	246,061	1,068	591,532	597,487	1,881,026	 1936
1937..........	103,137	222,637	325,774	10,963	1,788	3,420	16,171	133,208	844	585,576	447,602	1,509,175	1937
1938..........	186,794	260,659	447,453	10,276	2,322	2,933	15,531	301,123	1,035	400,876	541,812	1,707,830	1938
1939..........	73,216	196,672	269,888	....	....	....	16,103	245,096	797	620,602	386,584	1,539,070	1939
1940..........	86,215	280,188	366,403	....	....	....	17,741	224,524	1,205	213,911	643,443	1,467,227	1940
1941..........	149,715	305,582	455,297	17,794	3,911	28,771	50,476	391,407	3,454	427,766	920,470	2,248,870	 1941
1942..........	418,491	248,080	666,571	11,198	3,826	9,721	24,745	211,139	4,649	270,622	633,834	1,811,560	1942
1943	72,507	92,382	164,889	4,171½	2,199	4,287½	10,658	186,042½	3,095	530,188½	363,348½	1,258,221½	1943
1944..........	107,431	140,283	247,714	3,664	3,368	13,330	19,362	183,546½	3,926½	389,692	255,316½	1,097,557½	1944
1945	122,384½	205,617	329,001½	3,666½	2,686	6,447½	12,800	218,887	2,922	825,512½	350,188	1,739,311	1945
1946	381,580	161,447	543,027	3,972½	523	2,823	8,100½	100,154½	4,115½	116,607½	576,133½	1,348,138½	1946
1947*..........	91,238	195,259	286,497	3,840½	2,166	4,010½	10,017	146,293	3,268½	600,787½	486,615½	1,533,478½	1947
1948..........	83,986	176,656½	260,642½	10,002	890	5,546½	16,438½	207,116	5,665½	321,721½	496,553	1,308,137	1948
1949..........	116,181	143,699	259,880	....	....	....	21,065	214,939	2,381	709,217	226,241	1,433,723	1949
10-Year Avg..	**162,973**	**194,919**	**357,992**	**6,858**	**2,189**	**7,790**	**19,140**	**208,405**	**3,468**	**440,602**	**495,212**	**1,524,622**	**10 Year Avg.**

NOTE:—Figures for 1925 to 1948 have been corrected from official statistics. Figures for 1949 are subject to further correction. Figures for "Fraser River Sockeyes" include all Sockeyes canned in District No. 1, regardless where caught.

* Figures for 1947 include 28,321 cases packed from frozen fish of 1946 catch of various species.

Fall Chum prices were negotiated in October, with a minimum of 9c per lb., retroactive to Sept. 1, applying to Johnstone Strait proper, and 7c for Chums in all other areas south of Cape Caution, subject to adjustment.

Intensity of Fishing Brings Longer Closed Time

Early in the season the Canadian Fisheries Department announced its intention of increasing the weekly closed time in the more congested areas from 72 to 96 hours, basing the length of closure on the number of "units" of total fishing effort rather than on the number of seines employed. Chief Supervisor A. J. Whitmore said this procedure was the result of exceptional intensification of fishing in waters between the north end of Vancouver Island and the mouth of the Skeena, which had interfered with escapement the previous season.

However, this policy was actually put in effect only in the Queen Charlottes area. The department stayed its hand when the threatened further increase in concentration of gear did not materialize, owing, apparently, to a diversion of fishermen's interest to the Fraser River Pink run.

APPROXIMATE PACK OF CANNED SALMON IN BRITISH COLUMBIA LATER THAN MID-OCTOBER IN RECENT YEARS

Year	*Grand Total*	*Chums*	*Cohoes*
1949 (10/15)	31,755	17,123	6,159
1948 (10/ 9)	152,995	139,092	11,126
1947 (10/11)	58,198	51,851	4,936
1946 (10/12)	143,342	138,699	5,226
1945 (10/13)	72,000	56,000	10,000
1944 (10/14)	34,000	25,000	10,000
1943 (10/ 9)	139,000	131,000	5,000
1942 (10/10)	350,000	324,000	11,000
1941 (10/11)	454,000	435,000	15,000
1940 (10/12)	242,000	213,000	20,000
1939 (10/14)	167,000	145,000	12,000
1938 (10/15)	198,000	175,000	10,000

Echo Sounders Useful

Using echo sounders, Canadian fishermen had notable results on Swiftsure Bank off Cape Flattery during the Pink run in mid-September. Their deep sounding revealed the presence of fish at a depth of about 35 fathoms, and excellent catches were made. It was indicated that echo sounders will be used to a greater extent in this fishery in future.

There were the usual complaints from various groups of fishermen to the effect that seiners were interfering with the operation of trollers and gillnetters; and pleas were made for international protection of the Pinks along the lines enforced for Fraser River Sockeyes, but no official action was recorded.

SALMON DEVELOPMENTS

Aside from continued progressive trends, few striking developments took place within the industry in 1949. Expansion was limited by short seasons and market conditions, though many minor improvements were made on Puget Sound.

Alaska operations were hampered by drastic restrictions and increased taxation, and "anti-trap" agitation was intensified.

Developments of a broad nature affecting the salmon industry in 1949 were of relatively greater importance than those within the industry itself. Especially significant were political actions in Alaska, aimed primarily against salmon traps but including many vexatious and oppressive new tax burdens, virtually prohibitive to some present operations.

One of the most drastic taxes—running up to 25c per fish on the catch of some of the more productive traps—was later declared discriminatory and invalid by federal court, whose decision was accepted as final. The validity or application of some others is still uncertain, but it is evident that salmon canners—especially those depending on trap-caught fish—will have to carry much heavier tax burdens than in the past.

The territory intensified its pressure for abolition of traps by Congress, and also for statehood, which would place all fishery matters under direct Alaskan control; but neither subject reached the point of final decision.

Alaska adopted a very elaborate safety and sanitation code, embodying many features applicable to urban communities. Most fish canneries had previously been brought in line with its provisions, but its requirements as to new installations are very strict.

The U. S. Supreme Court decided the "Karluk case" in favor of the industry, holding that the legal prohibition of exclusive rights of fishery applies to Indians as to others.

Labor controversies caused some work stoppage during the season, but most of the year's Alaska labor problems were settled earlier than in 1948, and in most cases with relatively little change in terms.

Conservation Problems

Rapid increase of fishing intensity and quantities of gear was recognized as an outstanding problem of conservation in all districts. In some British Columbia areas this resulted directly in sharp curtailment of fishing time; and in Alaska it was one of the primary considerations leading to a drastic shortening of seasons, which in some areas was almost prohibitive.

In Southeast Alaska particularly, the season was so curtailed that many canneries did not operate, and the plants in operation were unable to handle properly the run that actually developed. At the same time, the Interior Department continued its urgent efforts to gain authority for control of the quantity of gear and number of boats fishing in each area.

Much attention was given by operators and state officials to the federal reclamation and dam construction program in the Columbia River watershed, which threatens complete destruction of the great salmon run of that district. The program is proceeding, in a way which already seems to make serious detriment to the run inevitable; but strong effort is being exerted toward prior development on streams where the salmon will not be affected, before undertaking such works at more vital points.

Progressive Trends Continue

Several modern trends in the salmon industry, noted the year before, continued through 1949, though at somewhat diminished pace. Further substantial progress was made in provision for better cannery "housekeeping," sanitation, accident and fire prevention, care of raw material and improved practices generally.

Use of ice and refrigeration in handling the raw fish became more general, and there was some new development in freezing of salmon for canning, although the over-all extent of such operations may have been smaller than in the year or two previous. Long-distance transportation of fish for canning was practiced on an unusually large scale— with satisfactory results only where facilities were adequate and approved methods were carefully followed.

Expansion of packing facilities was restricted, in general, by un-

1949—Canned Salmon Pack of Pacific American Fisheries, Inc.—1949

District and Cannery Location	Red or Sockeye				Pink			Chum			Coho	King or Chinook			Grand Total (Full Cases)
	1-Lb. Talls	1-Lb. Flats	½-Lb. Flats (8 doz.)	Total	1-Lb. Talls, Etc.	½-Lb. Flats (8 doz.)	Total	1-Lb. Talls, Etc.	½-Lb. Flats (8 doz.)	Total	Total (Full Cases)	1-Lb. Talls, Etc.	½-Lb. Flats (8 doz.)	Total	
WESTERN ALASKA															
Nushagak	7,422	....	5,179	12,601	....	....	....	4,617	798	5,415	8	....	1,945	1,945	19,969
Naknek	12,222	15,268	....	27,490	....	....	....	558	....	558	....	33	....	33	28,081
Port Moller	5,876	....	....	5,876	....	....	....	2,600	....	2,600	2,349	70	....	70	10,895
Total Western Alaska	25,520	15,268	5,179	45,967	....	....	....	7,775	798	8,573	2,357	103	1,945	2,048	58,945
CENTRAL ALASKA															
King Cove	....	....	4,219	4,219	21,648	....	21,648	23	6,330	6,353	7	40	....	40	32,267
Squaw Harbor	1,069	....	7,815	8,884	11,666	1,106	12,772	3,821	562	4,383	285	136	....	136	26,460
Chignik	3,494	....	....	3,494	304	....	304	255	....	255	11	32	....	32	4,096
Alitak	†	1,125	6,221	7,346	20,617	1,048	21,665	247	1,484	1,731	13	3	3	6	30,761
Snug Harbor	†11,607	3,944	....	15,551	19	....	19	271	....	271	1,734	317	....	317	17,892
Total Central Alaska	16,170	5,069	18,255	39,494	54,254	2,154	56,408	4,617	8,376	12,993	2,050	528	3	531	111,476
SOUTHEAST ALASKA															
Petersburg	237	....	....	237	94,283	....	94,283	7,184	....	7,184	2,285	....	....	....	103,989
Kasaan	1,078	....	....	1,078	116,275	21	116,296	12,015	....	12,015	3,281	....	....	....	132,670
Pillar Bay	32	....	....	32	15,933	....	15,933	1,025	....	1,025	418	....	....	....	17,408
Hawk Inlet	340	....	....	340	30,735	....	30,735	4,377	....	4,377	1,795	....	....	....	37,247
Total Southeast Alaska	1,687	....	....	1,687	257,226	21	257,247	24,601	....	24,601	7,779	....	....	....	291,314
Total Alaska	43,377	20,337	23,434	87,148	311,480	2,175	313,655	36,993	9,174	46,167	12,186	631	1,948	2,579	461,735
PUGET SOUND															
Bellingham* and Friday Harbor	† 22	1	1,914	1,937	10,524	2,887	13,411	170	....	170	1,030	395	93	488	17,036
GRAND TOTAL	43,399	20,338	25,348	89,085	322,004	5,062	327,066	37,163	9,174	46,337	13,216	1,026	2,041	3,067	478,771

†Included with 1-lb. Talls in Pacific American Fisheries' tabulation for Alaska are 1-lb. Flats as follows (cases, 48/1): Alitak, 247 Chums; Snug Harbor, 1,003 Cohoes and 167 Kings. Puget Sound pack includes 4-lb. cans (tabulated with Talls) as follows: Sockeyes, 1 case; Pinks, 1,392; Chums, 5; Cohoes, 251; Chinooks, 16; also 27 full cases Coho halves. All Cohoes except those mentioned were canned in 1-lb. Talls.

*New cannery, in building of former Bellingham Canning Co.

Note—Some Pacific American packs were made through joint operation in canneries of other companies, as follows: Chignik, in plant of Alaska Packers Association; Snug Harbor, in plant of Snug Harbor Packing Co.; Hawk Inlet, in plant of P. E. Harris & Co.; Pillar Bay, in plant of Fidalgo Island Packing Co. Part of the Puget Sound pack was made in plant of Friday Harbor Canning Co.

favorable production prospects in Alaska, sharply curtailed fishing seasons and a dubious market outlook. Minor improvements were quite numerous, and there were two notable replacements; but new construction was very limited and new enterprises were few and small.

New Developments By Pacific American Fisheries

Several notable developments, exemplifying some of the forward-looking trends above mentioned, took place in the operations of Pacific American Fisheries, Inc., which again engaged directly in production on Puget Sound for the first time in many years.

This company completely rehabilitated the former Bellingham Canning Co. plant, acquired in 1937, and made it an entirely new model cannery embodying many interesting ideas.

Among the notable features, aside from the two American Can Co. lines for talls and halves, are all-concrete floors, including fish-bin bottoms, high curbs around the two "Iron Chinks" and metal-lined gutters; advanced waste-disposal system; all-steel equipment and "furniture;" elaborate lighting facilities, with a wiring system, new to the salmon industry, which gives remarkable flexibility in lighting and motor hook-up; steel elevator with woven-wire belt, and continuous weighing equipment at its head; flake-ice machine with improved fish-icing mechanism; Pacific American's patent machines for removing skin and backbone from the fish; novel arrangement of heavy steel hoppers; automatic Foxboro control for the four double-ended 10-car Reid retorts.

Pacific American found salmon skins (removed in production of its skinless and boneless salmon) of value for leather, and found a market for this by-product.

Indians Increase Canning Operations

Alaskan Indian communities, with government financing, further increased their activity in salmon canning. The Angoon group operated the Hood Bay cannery (purchased the year before) for the first time, preserving its former business title of Hood Bay Salmon Co.

Late in the year the community at Kake closed a deal for purchase of the cannery at that point, along with nine traps, from P. E. Harris & Co., and started plans for 1950 operation.

In December, also, it was announced that the Klawock community would soon take up its option on the Demmert cannery at Klawock, although Libby, McNeill & Libby have it under lease for 1950. The Libby lease was made with the Demmert interests early in the year, following termination of a previous lease to the Bellingham Canning Co.

Two Notable Replacements

The principal new canneries were for replacement of plants burned the previous season—those of the Kadiak Fisheries Co. at Port Bailey, Kodiak Island, and the Hydaburg Cooperative Association at Hydaburg on Prince of Wales Island.

An up-to-date American Can Co. high-speed 1-lb. tall line was added to the Southwestern Fishery Co.'s herring plant at Iron Creek, Raspberry Island (Kodiak area); and the Ace Trading Co., a new concern, established a small cannery in the same section, near Afognak Island.

Floating Plants Improved

One new floating cannery — a 1-line outfit installed on a 153′ steel LCS—was put in operation by the newly-organized Kayak Packing Co., headed by Jack E. Most, and packed in the Alaska Peninsula area. Other floaters were considerably improved: the *Alaska Queen* of Queen Fisheries, Inc., replacing her original equipment with a high-speed Continental Can Co. line, while the Island Seafoods, Inc., operating at Chignik, mechanized its plant with an "Iron Chink" and an American Can Co. line, and also put on a big power scow for tender, towing and carrying service.

Freezing of Bristol Bay fish for canning on Puget Sound, started in 1948 by the *Reefer King*, was augmented by the converted 185′ Army salvage vessel *Pacific Queen*, operated by a group well known in Puget Sound fishing circles. She was finely equipped for the purpose; but failure of the Bristol Bay run held down the tonnage available for handling in this manner.

Puget Sound canneries made many improvements in preparation for the Pink run. The Anacortes Canning Co. (closed in 1948) put in new pile foundations and flooring and added a "Salmon Indexor" and a lift truck; Burk Canning Co., Bellingham, installed a new elevator and built a new concrete-floored fish-house, and the CRPA cannery there added a hand-pack line for ¼-lb. cans. Dungeness Crab, Inc., Anacortes, installed a new American Can Co. ½-lb. line and tall filler, and Farwest Fishermen, Inc., added another tall line.

Fishermen's Packing Corp. equipped all six of its lines with new cooler-loading mechanisms devised by its superintendent. Keller Fishing & Packing Co., Deer Harbor, built an improved elevator, installed a new 125-hp. boiler and improved its layout for straight-line operation; and the Sebastian-Stuart Fish Co. replaced its canning equipment with two complete American Can Co. lines.

No Big Fires

The year was free from really heavy fire losses. The bunkhouse, store and messhouse of P. E. Harris & Co.'s Hawk Inlet plant were burned Feb. 16, but the cannery itself was undamaged, and the burned buildings were replaced in time for the packing season. Two small Cordova waterfront canneries—Cordova Packing Co. and Ocean Fresh Seafoods Co. — were completely destroyed at the end of August, after the close of the main salmon season.

Few Business Changes

Aside from the Indian deals above mentioned, the year brought few changes in ownership or business structure among the salmon canning concerns.

John and Robert Breskovich, among those interested in the freezership *Pacific Queen*, took over the 2-line Chase Packing Co. cannery at Anacortes, and operated it under the name of Pacific Packing Co., a partnership.

The B & G Packing Co. of Anchorage, operated by Charles A. German, purchased the floating cannery of the Seaview Canning Co. of Seattle, which had been taken to Kenai the year before, and operated it at Kasilof, Cook Inlet.

Principals of the Kadiak Fisheries Co. acquired control of the Orcas Canning Corp., with a cannery at Carmel, Kodiak Island.

Whiz Fish Products Co., which had bought the Frank McConaghy plant at Kodiak the previous year, expanded its operations further by purchase of the 2-line Gilbert Packing Co. salmon and clam cannery at Cordova, with extensive water frontage and considerable floating equipment.

A. W. and H. A. Brindle of the Wards Cove Packing Co., who had previously bought the old Red Salmon Canning Co. of Bristol Bay, reorganized it as a partnership under the title of Red Salmon Co., and dissolved the former corporation.

Farwest Wrangell Co., which had long been an informal organization handling a joint operation of the Farwest Alaska Co. and Wrangell Fisheries, Inc., was incorporated and absorbed both the other concerns, with canneries at Wrangell and Saginaw Bay.

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Washington State Landings of Columbia River Silver Salmon by Gear 1935-48

Year	INSIDE					OUTSIDE	Total Pounds	Year
	Dip Bag Nets	Gill Nets	① Drag Seins	① Set Nets	① Traps	Troll		
1935		640,339				484,883	**1,125,222**	1935
1936		340,427	528			600,489	**941.444**	1936
1937		501,795	865		46,398	407,752	**956,810**	1937
1938		748,082			41,364	870,029	**1,659,475**	1938
1939		404,093	1,769	121	35,576	697,324	**1,138,883**	1939
1940	138	348,490	3,644	92	21,380	652,139	**1,025.883**	1940
1941	164	249,168	1,203	20	14,047	277,640	**542,242**	1941
1942	591	149,454	879	159	20,581	361,743	**533,407**	1942
1943		142,885	6,796		44,718	297,945	**492,344**	1943
1944	84	337,410	12,199		55,730	588,991	**994,414**	1944
1945		473,922		534	37,341	378,383	**890,180**	1945
1946	77	273,476			43,891	486,258	**803,702**	1946
1947	264	332,364		17	72,014	834,669	**1,239,328**	1947
1948		252,731			30,974	1,052,803	**1,336,508**	1948

① Oregon gear—fish landed in Washington.

Washington Landings of Columbia River Chinook Salmon by Gear, 1935-48

Year	INSIDE					OUTSIDE	Total Pounds	Year
	Dip Bag Nets	Gill Nets	① Drag Seines	① Set Nets	① Traps	Troll		
1935	438,666	3,739,789				41,395	**4,219,850**	1935
1936	248,661	3,406,003	14,717			332,778	**4,002,159**	1936
1937	405,452	4,511,640	45,116		98,890	197,890	**5,258,616**	1937
1938	209,472	2,998,807	485	1,652	76,826	116,726	**3,403,968**	1938
1939	159,824	3,637,342	99,644	6,737	90,485	180,261	**4,174,293**	1939
1940	249,130	3,329,010	147,168	11,077	80,274	255,169	**4,071,828**	1940
1941	639,363	5,650,453	108,330	15,235	69,654	415,694	**6,898,729**	1941
1942	405,882	5,210,030	63,882	34,874	164,880	389,099	**6,268,647**	1942
1943	200,241	2,681,167	103,637	9,366	178,929	122,662	**3,296,002**	1943
1944	192,302	4,281,899	116,307	13,673	119,658	288,992	**5,012,831**	1944
1945	123,419	3,790,420		30,283	72,361	321,465	**4,346.948**	1945
1946	505,679	3,747,052		7,664	133,643	578,521	**4,972,559**	1946
1947	710,878	4,556,296		16,922	152,378	489,047	**5,925,521**	1947
1948	1,140,129	3,442,126			91,634	434,701	**5,108,590**	1948

① Oregon gear—fish landed in Washington.

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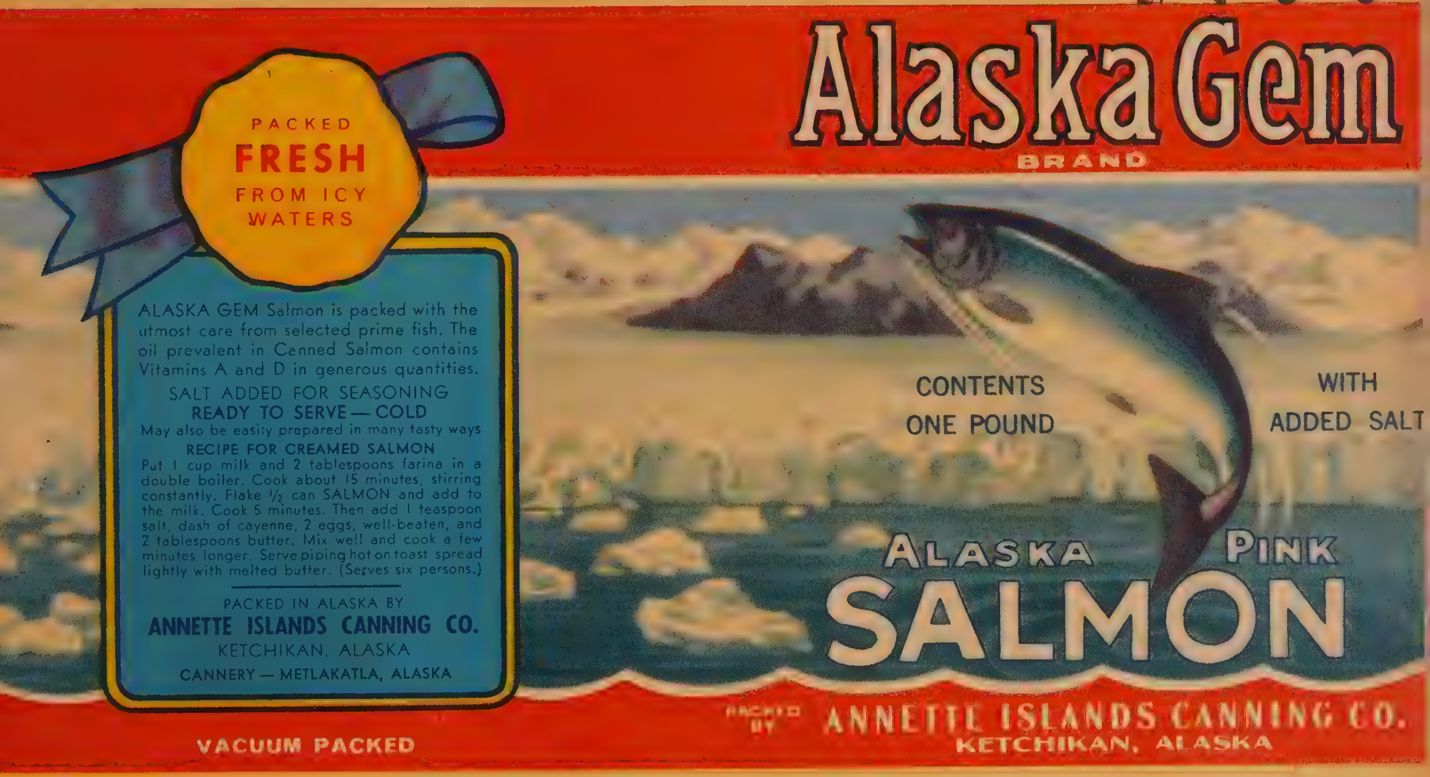

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May also be easily prepared in many tasty ways

RECIPE FOR CREAMED SALMON

Put 1 cup milk and 2 tablespoons farina in a double boiler. Cook about 15 minutes, stirring constantly. Flake ½ can SALMON and add to the milk. Cook 5 minutes. Then add 1 teaspoon salt, dash of cayenne, 2 eggs, well-beaten, and 2 tablespoons butter. Mix well and cook a few minutes longer. Serve piping hot on toast spread lightly with melted butter. (Serves six persons.)

PACKED IN ALASKA BY
ANNETTE ISLANDS CANNING CO.
KETCHIKAN, ALASKA
CANNERY — METLAKATLA, ALASKA

CONTENTS
ONE POUND

WITH
ADDED SALT

ALASKA PINK
SALMON

VACUUM PACKED

PACKED BY **ANNETTE ISLANDS CANNING CO.**
KETCHIKAN, ALASKA

A Favorite in the Most Discriminating Markets

There's good reason for the popularity of Alaska Gem and other salmon canned by Annette. Our cannery, ideally located adjacent to fishing grounds, is always assured a supply of fine, prime ocean-caught fish . . . salmon that are naturally best . . . fresh-caught and canned while at their best. Particular pride is taken, too, in handling and processing, in the cleanliness and sanitation of our modern cannery, one of the show-places of Alaska. All to safeguard the quality that is our reputation. This same fine quality product is also available to the trade unlabeled, for private brand labeling.

Annette Islands
CANNING COMPANY

Cannery at
METLAKATLA,
ALASKA

Packers of
RED, COHOE, PINK
and CHUM SALMON

Offices
COLMAN BLDG.,
SEATTLE 4, WASH.

A Seafaring Organization

BORN ON THE SEACOAST, and having first tasted salt water on the shores of its home city, Fireman's Fund Insurance Company has followed the sea since the days of iron men and wooden ships. The company was founded at San Francisco in 1863 and, since the glorious days of the clipper ship, the city by the Golden Gate has become a great seaport, and Fireman's Fund has grown until today it ranks first among all American companies writing marine insurance.

Although its operations are world-wide, Fireman's Fund has always remained a *home company* to the Pacific Coast, where its underwriting operations, hull and cargo, and its claim settling facilities reach from the northern extremes of Alaska to the southern boundaries of Chile.

Men of the sea, whether they sail purse seiners, tuna clippers, cargo carriers, or passenger ships like to do business with men who know and understand the perils of the sea—they like to do business with Fireman's Fund.

Ocean and Coastwise ***Hulls and Cargoes***

Marine Department

FIREMAN'S FUND INSURANCE COMPANY

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Pacific Coast Offices: **Seattle · Spokane · Portland · Sacramento · Oakland · Los Angeles · Vancouver, B. C.**

MARKETS

SALMON

Moderate downward adjustment of canned salmon prices occurred during the 1949 marketing year, but in the case of Red Salmon a short pack served to bring prices back most of the way.

Pinks in unexpected volume sold down during the year, and as 1950 opened were the only canned salmon item in *plentiful supply.*

Canned salmon prices in 1949 reflected supply, and generally resisted bearish effects of Sterling devaluation and marked weakness in some canned fish items.

Marketing of canned salmon in 1949 was featured by a slight reversal of the upward trend of the three preceding years. Values of all varieties sagged more or less during the year, though after the packing season Alaska Reds recovered most of the ground lost.

Among the factors chiefly responsible for the decline were:

Reaction from the previous year's peak prices, which met with strong resistance and undoubtedly restricted the demand;

Occasional predictions of general recession which, though not realized, caused a "jittery" and ultra-cautious feeling in the distributing trade;

Declining markets in various food commodities, and especially sharp drops in other lines of canned fish;

Devaluation of the pound sterling which,with its reaction on other foreign currencies, closely restricted export trade and brought increased imports at low prices, causing keener competition to American fishery products in general.

Pinks Are the Only Plentiful Item

Greater over-all salmon production also played an important part, although the actual increase was limited to Pinks; all other species falling not only far short of the 1948 level, but below the previous ten-year average. Thus the course of the market for Pinks (and for Chums along with them) was altogether different from that on Reds and other "high-grade" items, in which acute scarcity largely counteracted the depressive factors.

This was just the reverse of 1948, when Pinks were exceedingly short and Reds in fairly good supply. The total pack was really not large: though well ahead of the previous year, it fell some 400,000 cases below the ten-year average, and was far short of most years prior to 1944. Even the Pink output was far less than during the 1930's and, with the price readjustment effected, should present no serious problem.

Reds Cleaned Up

After all new-pack adjustments, the year-end picture was substantially as follows:

Alaska Reds closely cleaned up, both talls and halves, though with prices slightly lower than a year before; talls sold out at $25 to $26; few halves left, advancing to $16.

Puget Sockeyes in light supply and firm at $16 for halves, machine-filled; hand-packed, $17. Fancy Chinooks sold out, with light stocks of lower-grade Chinooks and Alaska Kings firmly held; top-quality Cohoes closely cleaned up, with ordinary stock in moderate supply and moving steadily at $21 talls, $12-$12.50 halves.

Pink talls in ample supply, and steady at $16 after long-continued decline, with full expectation of a clean-up before 1950-pack appears; stocks of Chum talls relatively light and firmly held at $15, with first-class summer Chums quite scarce; no large offerings of halves, Pinks at $10, Chums $9-$9.50.

Packing of ½-lb. cans of all species (except fancy Chinooks and

U. S. EXPORTS OF CANNED SALMON, 1947-48-49

Year	*Total (Cases)*	*Value*	*To U.K. (Cases)*	*To Philippines (Cases)*	*All Other (Cases)*
1949*	193,739	$4,458,222	122,583	19,302	51,854
1948	55,025	$1,305,362	220	17,462	37,343
1947	1,286,360	$19,745,285	931,807	57,964	296,589

---

*January 1 through Sept. 30 only. Figures for 1948 and 1947 are for full calendar years.

GAVIN BROS., INC.

Distributors

CANNED SALMON

Canned Clams ▼ Canned Tuna

Canned Crab Meat

Colman Building SEATTLE 4

TALBOTT CARROLL CO., INC.

HULLS • CARGO • FIRE • LIABILITY

◆

Insurers for the

FISHING INDUSTRY

MARINE GENERAL AGENTS

Phoenix Assurance Company, Limited of London

The Union Marine and General Insurance Co., Ltd.

◆

COLMAN BUILDING ELiot 6400 SEATTLE 4, WASH.

INITIAL PRICES FOR CANNED SALMON

(Per case of 48 cans. Prices in dollars and decimals)

Year—	Chinook Columbia River Fancy	Sockeye Puget Sound	Red Alaska		King Alaska	Coho–Medium Red		Pink		Chum	
	Halves	Halves	Talls	Halves	Talls	Talls	Halves	Talls	Halves	Talls	Halves
1910	$4.4	$4.4	$5.4	$4.	$5.4	$5.	$3.2	$3.2	......	$3.1	......
1911	5.2	5.2	6.4	4.5	7.2	5.8	4.	4.	3.2	3.8	$3.
1912	5.	5.2	5.6	4.6	5.6	4.6	3.2	2.6	2.2	2.5	2.
1913	5.	4.2	4.6	3.8	4.	3.4	2.8	2.6	2.2	2.2	2.
1914	5.	5.4	5.8	4.4	5.6	4.6	3.3	3.6	2.8	3.4	2.6
1915	5.	5.4	6.	4.6	5.	4.6	3.	3.	2.3	2.8	2.1
1916	5.	5.6	6.	4.8	5.4	5.2	3.6	3.6	3.	3.4	2.7
1917	7.	7.	9.4	6.6	9.	8.	5.4	6.6	4.6	6.4	......
1918	8.	8.	9.4	6.6	9.	9.6– 9.	6.4	6.6	4.6	7. – 6.4	4.4
1919	8.	10.	13.	9.	12.5	12.	8.	9.	5.6	8.6	5.
1920	10.	12.	13.	9.	12.	8.	6.	6.	4.4	4.6	3.6
1921	8.4	10.	9.4	8.	7.	6.	3.8	4.4	3.2	4.	2.6
1922	13.	10.	9.	7.	7.	5.	4.	4.6	3.2	4.2	2.8
1923	10.	10.	9.	6.6	8.	5.6	4.	5.	3.6	4.8	3.4
1924	8.8	9.	9. –10.	6. – 7.	8.6– 8.4	7. – 6.	5.4– 4.2	5.2– 5.	3.6	4.8	3.4
1925	8.4	9.4–10.	14.	9.	13. –12.	11. –10.	7.4– 7.	5.8– 5.	4. – 4.4	4.6– 4.4	3.6– 3.4
1926	9.4	10.	10.	8.	9.	9.	6.	5.4	4.2	5.	3.6– 3.2
1927	9.4	11.	12.4	9. – 8.6	11.4–10.6	10. – 9.	6.6– 6.	6. – 5.4	4.6– 4.4	5.4– 5.2	3.8
1928	9.8	10.4	9.4	7.4	8.6– 8.	7.4– 7.	5.4	6.6	4.4	6.4	4.
1929	10.4–10.	10.	10.6	8.	9.	8. – 7.4	5.6– 5.4	6.	4.4	5.4	4.
1930	10.	8.	12.4	8.	10.6	9.	5.6	4.	3.	3.6	2.8
1931	8.	8.	9.4	6.6	7.	7. – 6.4	4.8– 4.6	3.4	2.8	3.2	2.6
1932	6.	6. – 5.	5.8– 5.	4.	4.4	4.	3.2– 3.	3.4– 3.	2.4	3. – 2.8	......
1933	7.6– 7.	7. – 6.6	7. – 6.6	4.8	6.	5.4	......	4.8	3.	4.6	2.8
1934	7.2	5.4	6.8– 6.4	4.8– 5.	5.4	5.	4. – 3.8	4.2– 4.	3.2	4. – 3.8	3.
1935	7.2– 7.	7.	9.4– 9.	6.6– 6.4	8. – 7.	6.6	4.4	4.2– 4.	3.2	4. – 3.8	3.
1936	8.	7.	8. – 7.6	6.	7.	6.6– 6.4	4.4	4.	3.4– 3.	3.7– 3.6	3. – 2.8
1937	8.4	8.4	10.	6.8	9.	8.	5.	5.	3.4	4.8	3.2
1938	9.2– 8.4	7.	7.8– 7.4	5.6	7.6– 6.8	6.4	5.	4.	3.	3.8– 3.6	2.8
1939	9.2– 8.6	8.	9. – 8.6	6.7– 6.4	8.4	7. – 6.4	5. – 4.8	5.2– 5.	3.6– 3.4	4.6	3.2
1940	9.	8.4	9.6	6.6	9.2	7.4	4.8	5.4	3.8	4.8	3.4
1941	10.4	10.	13.6–13.4	8.2	12.	......	7.	7.	4.8– 4.4	6.8	4.6– 4.2
1942	13.	11.4	15.	10.	......	11.8–11.6	8.	8.	5.6	7.6	5. – 5.4
1943	13.	11.4	15.	10.	14.	11.8–11.6	8.	8.	5.6	7.6	5. – 5.4
1944	13.	11.4	15.	10.	14.	11.8–11.6	8.	8.	5.6	7.6	5. – 5.4
1945	13.	11.4	15.	10.	14.	11.8–11.6	8.	8.	5.6	7.6	5. – 5.4
1946	18.5	19.	22. –20.	16.5–13.4	20.	17. –16.	11.6	12.	8.4	11.6– 9.4	8.
1947	20. –19.	22. –19.	24.5–22.6	17.5–16.	22. –21.4	22.	15.4–15.	19. –17.2	13.5–11.5	18.5–16.5	12.5–11.1
1948	23.5–22.	22.	27. –26.	19. –18.	26. –24.	25.	17.5–15.	23. –22.	15. –13.	20. –22.	13.5–12.
1949	20. –18.	......	26.5–25.	16. –15.	24. –22.	22. –21.	12.5	16.	10.	15.	9.5– 9.

Note: The title of this tabulation has been changed from "OPENING PRICES" to "INITIAL PRICES," and the prices of pre-war years—originally quoted *per dozen* each are converted to the *per case* basis which is now in general use.

The prices are quoted in dollars and decimals thereof, rather than in dollars and cents; and are based largely on formal "opening prices" announced as such by leading sellers, they are not limited exclusively to such quotations. The formal "opening prices" of different concerns are often incomplete, and vary so widely that a full presentation of them might be confusing. The purpose of this tabulation is to present comprehensively for each year the earliest prices at which substantial quantities of the pack were sold.

The prices here quoted for the war years are the "ceilings" established by the government. Those for 1946 are the prices announced by the majority of large packers after "de-control."

Sockeyes) was on a relatively smaller scale than in the two years before, and the previous surplus of this size no longer exists. Increased attention was given to ¼-lb. cans, but this size for salmon is still a minor specialty in the United States, and the limited output is readily disposed of.

Buyers' Caution Results In "Consigned" Shipments

Caution was, from the distributors' standpoint, the keynote of the entire year's operations. Beginning the previous fall, buyers were reluctant to make long-term commitments or cover their needs for more than a few weeks ahead. Hand-to-mouth buying was the general rule, and many sales were of almost a retail nature, which placed altogether abnormal burdens on packers and sales organizations.

To meet this tendency, the carrying by sellers of "consigned" stocks in distributing markets—always regarded as objectionable by a great part of the industry, and largely discontinued during the war years—became widely prevalent, placing primary sellers almost in the position of small jobbers.

Sale of the more abundant items—notably Pinks—was substantially augmented by sharp reduction of retail margins in many markets, making salmon a conspicuously economical food. In some cases, with keen competition between chain stores and "supermarkets," retail profit was virtually eliminated, and at times salmon was again used as a "loss leader." Such developments, whether wholesome or unwholesome in the long-term view, served to bring about a rapid movement into consumption.

Last of 1948 Pack Sold Out at Low Prices

Buying interest early in the year was dampened by a drop in meat prices, and sales lagged, though prices were well maintained on everything but Chum talls—which fell to $16.50 or less in March—and Coho halves.

April brought pressure to sell, with easing of prices on most items, and considerable activity resulted, absorbing most of the remaining carryover. Some blocks of Red talls, formerly held at $27, were cleaned up at $26, and some Chum talls went as low as $15. Pink halves, cut to $11, cleaned up early. Halves of other species became rather burdensome, but most of the Coho and choice Chinook halves were taken off the market in May by British buying.

Most striking development of the

THIS IS NO FISH STORY!

We can help you *if* you need better sales in New England.

Here is a prosperous, populous market of approximately 9,299,000 people (U.S. Dept. of Commerce estimate July 1948) with a per capita family income of over $4000, and annual food sales of nearly $2,000,000,000.

It can best be covered by an organization that KNOWS, through long association, the independent and key chain store buyers, and the purchasing preferences of New England consumers. (For your information, they eat a lot of fish.)

JONES, WEISMANN & CO.
FOOD BROKERS
131 State Street, Boston 9, Mass.

WEYAND & CO.
COLMAN BUILDING
Seattle 4, Wn. Phone: Eliott 8520

Distributors

CANNED SALMON
AND OTHER
SEAFOOD PRODUCTS

Our Brands

RED MAJOR
OCEAN QUEEN
PACIFIC LEADER
NAKAT
QUEEN MARY
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Consistent Quality

CANNED SALMON
and other
SEAFOOD PRODUCTS

Featured Brands

ALASKA GEM
KOOL NORTH
MATCH-IT

1949 — Monthly Record of Pacific Coast Canned Salmon Prices — 1949

(Prices in dollars and decimals thereof, per case of 48 cans, 1-lb. or ½-lb., f.o.b. Pacific Coast Shipping Point)

Variety and Package:	December (1948)	January (1949)	February	March	April	May	June	July	August	September	October	November
Chinook, Fancy—	$	$	$	$	$	$	$	$	$	$	$	$
½-Lb. Flats	22 –23.5	22 –23.5	....	....	....	20	20	20	18 –20	18 –20	....	....
Puget Sound Sockeye— ½-Lb. Flats	21 –22	22	22	22	22–21	20	18	18	*16 –17	*16 –17	*16–17	*16–17
Alaska Red—												
1-Lb. Talls	27	27	27	27	27–26	26	24 –22	22 –24	24 –26.5	25 –26	....	....
½-Lb. Flats	18.5–19	18.5	18.5	18.5	18–17.5	17.5	17 –14.5	14.5–16	15 –17	15	15	15
Coho—												
1-Lb. Talls	25 –26	25 –26	25 –26	25 –26	25–24	23.5–23	23 –19	....	21 –22	21	21	21
½-Lb. Flats	14 –15.5	14 –15	14 –14.5	14	14–12	12 –11	11 –14	11 –12	12 –12.5	12 –12.5	12–12.5	12–12.5
Pink—												
1-Lb. Talls	23 –24	23 –24	23 –24	23 –24	23–24	23	20 –18	20	19.5–18	18 –16	16	16
½-Lb. Flats	14.5–15	14.5–15	14.5	14 –11	11	11	....	....	11 –12.5	10.5–10	10	10
Chum—												
1-Lb. Talls	19 –20	18.5–19	17.5–19	17.5–16	16–15	16.5	16.5	16.5	16 –17	16 –15	15	15
½-Lb. Flats	11 –12.5	10.5–12	10 –11	10 –11	10–10.5	9.5–10	9.5–10	9.5–10	9.5	9.5	9.5–9	9– 9.5

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*For new-pack Puget Sound Sockeyes, the $16 price is for machine-filled; $17 hand-filled.

spring came about June 1, when one of the largest remaining holders made a $5-per-case cut in Red talls, to $22, and Pink talls to $18, and sold out immediately. Red halves also were cut to $17. The small balance of 1948 stock was soon cleaned up on the basis of the above or slightly higher prices, leaving practically nothing but some Chum talls, at $15.50-$16.50, and a few halves of various species.

"Fancy" Goods Move Slowly

Meanwhile new-pack fancy Columbia River Chinook halves appeared at $20—a drop of $3.50 from 1948; but demand for fancy grades was rather slack all season and, despite very scant production, fancy Chinooks sold as low as $18 in August, cleaning up in September—though special brands were maintained at $19 to $20.

Then Copper River Sockeye halves came on the market, but failed to move until they got down to $15, and the last were finally sold to England at $14.50. A few old-pack Puget Sockeye halves were still available in midsummer, being quoted down to $18; followed in August by new-pack at $16 and $17, which held firm through the balance of the year. The $1 spread represents a differential between machine and hand-filled.

Reds Stiffen—Pinks Drop

After the June drop in Reds, a large volume of new-pack was booked at prices ranging from $22 to $24 for talls, $14.50 to $16 for halves, but stiffening as the shortage became apparent. Through August some of the larger packers quoted spot prices from $24 to $27 for Red talls, followed by "opening" prices which ranged from $25 to $26.50, at which the pack was practically sold out in September; the scant output of the larger interests being allocated among their customers. Red halves opened at $15 to $17. They sold mostly at the lower figure, but bounced back to $16 as the year ended.

Pink talls were held up to $20 in midsummer, with very little demand, but weakened to $19.50, then $19, as the big Southeast Alaska run developed, and formally opened at $18 to $19. With further production in September, however, they sagged off to $17-$18, and finally seemed to have found firm bottom at $16, to which most of the earlier sales were adjusted. Pink halves, opening at $12.50, finally settled to $10.

Chums, despite very small production, were slow to move and followed the downward course of Pinks; talls opening at $17 but dropping to $16.50, $16, and at last $15; while halves, starting at $9.50, did not go below $9. The better offerings of Chum talls were well sold out by early fall, and halves were not plentiful.

Cohoes at first received little attention, and talls soon fell from the $22 opening to $21. With the extreme scarcity of Reds, however, top-quality offerings were soon sold out. Halves, though a bit slow to move, held steady at the opening basis of $12-$12.50.

Exports Again a Factor In U.S. Canned Salmon Trade

Export trade, negligible in 1948, again became a factor of some significance in the American canned salmon market; the United Kingdom (with E. C. A. funds) resuming its normal place as the principal buyer, at least for the present.

Total exports in the first nine months of 1949 were some 3½ times those of the entire year 1948, though only about 15% of the 1947 figure, as shown in the accompanying tabulation; while Britain, which took practically nothing in 1948, received little more than 13% as much as the year before.

Last year's shipments of 193,739 cases were only about 20% of the prewar average (1934-1938) of over 914,000 cases, of which more than 750,000 normally went to Britain. It was expected that shipments in the last three months of 1949 would show a material increase, especially to countries which had not devalued their currencies.

British Buying

In the spring, with an ECA allotment of $2,200,000, the British Ministry of Food entered the market for American canned fish for the first time since early 1947. Most of this allotment was spent for California pilchards (of which some 9,700,000 lbs. were purchased), mackerel, etc.; but the balance went for salmon in May, cleaning up a lot of Columbia River goods and some Alaska Reds and Coho talls.

The third-quarter allocation of $2,650,000 for American canned fish, becoming available in July, was all spent for salmon. These purchases were mostly of the new pack, including substantial quantities of Cohoes and some Reds, both talls and halves. No funds for further purchases of this nature are now in sight, though it may be worth mentioning that the total amount devoted to procurement of salmon for U. K. in the United States falls short of the amount of ECA funds used for purchase of 1949-pack Canadian salmon, which was in the neighborhood of $7,000,000.

Whitney Quality

CANNED SALMON

DISTRIBUTED BY
WHITNEY & COMPANY
SEATTLE, WASH.

CANNED TUNA

THE WORLD'S FINEST
OLIVE OIL SARDINES
(Packed in Quarter Oil Cans)

EXTRA SARDINES SUPREME
PIERRE
BRAND
PACKED IN
OLIVE OIL
-BY-

SARDINES QUALITY EXTRA
LA PLAYA
BRAND
IN PURE PEANUT OIL

MACKEREL
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Finest Quality
Packs Obtainable

FILET OF MACKEREL
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Fillet of MACKEREL
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MACKEREL FILLETS
Packed in Peanut Oil in Tin or GLASS.

SEASIDE FISHERIES CO.
HARRY H. STEELE, *Manager*
1340 W. 7th St. LONG BEACH 13, Calif.

MARKETS
SALMON

Canada's own home market bulked larger than ever before in the British Columbia canned salmon sales picture in 1949-50, and the industry went out to court the Canadian housewife with a national advertising campaign.

Export markets which in the past have taken most of the British Columbia canned salmon pack were largely closed by foreign fiscal policies, and the stiff tariff standing along the border discouraged shipment to the neighboring United States.

Never before in the history of the British Columbia canned salmon industry had the domestic market assumed such importance as it did in 1949-50. Denied large-scale access to the traditional overseas markets because of currency devaluation, tariff and other restrictions, it became necessary for the Canadian west coast packers to depend on sales in Canada to a far greater extent than in any previous year.

The industry was not faced with such a complete bottleneck in 1949 in the United Kingdom as it had encountered the previous season, when the British government would not sanction the import of any canned salmon whatever. In 1949, despite the continuance of the Labor government's austerity program, the United Kingdom's ministry of food did relent to the extent of approving the importation of 410,000 cases of canned salmon from British Columbia, and this order proved to be a significant factor in the year's marketing. About the only other country abroad to buy B.C. canned salmon even in small quantity was Belgium.

"Empire" Markets Inactive

The so-called Empire markets, for one reason or another, were out of the picture entirely. As early as November, 1948 South Africa had adopted a policy of buying no canned salmon from hard money countries, owing to the shortage of dollars, and Australia, New Zealand and other potential markets followed suit for the same reason. There was no indication at any time in 1949 that this policy would be modified.

When other natural products of British Columbia, such as lumber and fruit, are unable to find sale in other foreign countries there is usually the comfortable alternative of shipping to the United States and usually at a rewarding price, but with canned salmon there is scant opportunity because of the stiff 25% duty.

1949 Pack Imposes Problem

The cause of most of the anxiety among B.C. salmon canners in 1949

PRICES FOR BRITISH COLUMBIA CANNED SALMON, 1942-1949

(Per Case of 48 Talls or 1-lb. Flats; 96 Halves; 96 Quarters)

Variety—	Talls or Flats, 1-lb.	Flats, ½-lb.	Flats, ¼-lb.
Sockeye—Grade A:			
1949	$31.50	$33.00	$19.00
1948	28.50	30.00	17.50
1947	23.50	25.00	15.00
1946-c	18.90	20.30	....
1945-46-b	17.65	18.90	11.20
1942-44-b	16.25	17.50	10.50
Grade B, and Grade A Tips & Tails: (No Grade B packed in 1948)			
1947	$18.70	$20.25	$12.52½
1946-c	14.90	16.30	....
1945-46-b	13.85	15.15	9.30
1942-44-b	12.75	14.00	8.75
Coho, Blueback, Spring (Red Pink and Jack) and Steelhead—Grade A:			
1949	$23.50	$25.00	$15.00
1848	24.50	26.00	15.25
1947	20.00	21.50	13.00
1946-c	13.90	15.25	....
1945-46-b	12.90	14.15	8.82½
1942-44-b	11.50	12.75	8.12½
Grade B, and Grade A Tips & Tails: (No Grade B packed in 1948)			
1947	$17.30	$18.85	$11.75
1946-c	12.10	13.50	....
1945-46-b	11.20	12.50	8.00
1942-44-b	10.00	11.25	7.27½
Pink—Grade A:			
1949	$16.50	$18.00	....
1948	16.50	18.00	....
1947	12.50	14.50	....
Grade B, and Grade A Tips & Tails: (No Grade B packed in 1948)			
1947	$11.85	$13.10	$8.57½
Chum—Grade A:			
1949	$12.50	$14.00	....
1948	15.00	16.50	....
1947	12.00	13.50	....
Pink, Chum and White Spring—Grade A:			
1946-c	$8.30	$9.70	....
1945-46-b	7.65	8.90	$5.70
1942-44-b	6.25	7.50	5.00
Grade B, and Grade A Tips & Tails:			
1946-c	$7.35	$8.75	....
1945-46-b	6.75	8.00	$5.25
1942-44-b	5.50	6.75	4.62½

NOTE: Quotations for 1948 and 1947 packs represent packers' opening prices to the domestic market.

Prices marked "c" were established by the Canadian government in December, 1946. for sales to the domestic trade, but are also roughly equivalent to those received for export to the United Kingdom, etc. Prices marked "b" were those paid by the British Ministry of Food in 1945-46 and 1942 to 1944.

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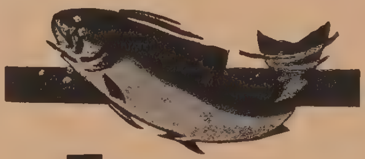

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CATCH OF FRASER RIVER SOCKEYE SALMON
By Four-Year Cycles, 1939 to 1949

The following figures, taken from reports of the International Pacific Salmon Fisheries Commission, represent the actual NUMBERS of Sockeye known to have been CAUGHT in waters covered by the Fraser River Sockeye Salmon treaty. Reliable catch statistics for years prior to 1939 are not available, but figures for the CANNED PACK appear on another page.

British Columbia	1939— 568,943	1940— 937,062	1941—2,116,723	1942—5,047,599
Washington	552,179	709,661	1,560,482	2,921,805
Total	**1,121,122**	**1,646,703**	**3,677,205**	**7,969,404**
British Columbia	1943— 349,011	1944—1,003,829	1945— 969,444	1946—4,239,622
Washington	242,822	436,182	716,685	3,551,761
Total	**591,404**	**1,440,011**	**1,686,129**	**7,791,383**
British Columbia	1947— 354,000	1948— 751,812	1949*—1,020,799	
Washington	90,117	1,089,060	1,058,117	
Total	**444,117**	**1,840,872**	**2,078,916**	

*Figures for 1949 are preliminary, probably not quite complete.

was that they would be obliged to face up to a twin dilemma of a large salmon pack and a sharply reduced sales outlet for it. There were early-season predictions of a total pack of all grades totaling 1,700,000 cases, based on the assumption that it would be roughly equivalent to the previous cycle years or perhaps better in view of improvement of the Fraser River situation. At any rate, the industry could expect a big pack of Pinks, which was something it didn't have in 1948 when it had to worry along without a market in the United Kingdom. And Pinks were harder to move than Sockeyes. There was going to be a big pack of Cohoes, too.

How to dispose of the pack was therefore the No. 1 problem of the industry in 1949-50. As the season advanced it became clear that, while the pack would be a relatively large one, it wouldn't be the outsized monster that some had forecast. There would be enough Pinks to impose a real marketing problem, but fewer Chums, which had caused a selling bottleneck the previous year. The readily salable Sockeye pack would be less than hoped for, possibly 40,000 or more cases short of what could readily be sold.

Of the Sockeye pack the industry was committed to ship U. K. 60,000 cases under the deal totaling 410,000 cases. Sixty-five thousand cases for U.K. were Coho, which would take quite a slice out of the total pack and leave the industry with considerably less of that grade to sell than at the close of the previous season. The Pink order to the United Kingdom was 285,000 cases, which would leave about 300,000 cases to be sold elsewhere.

Domestic Advertising Campaign

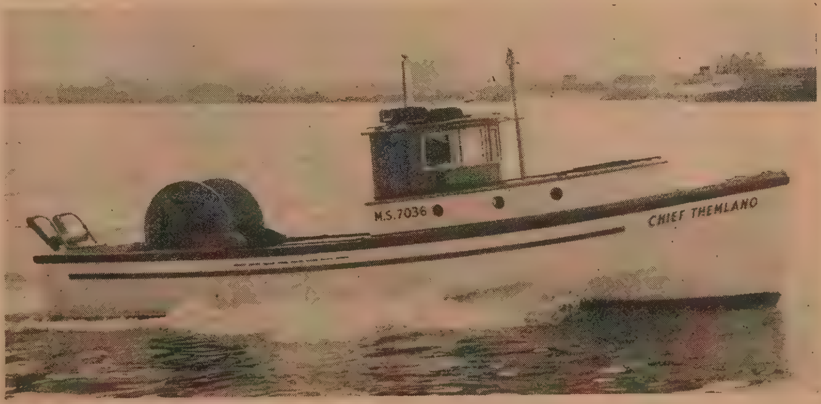
With so many other outlets closed, it was obvious that the British Columbia canners would have to make a special sales effort in the only market where all restrictions were off except these affecting the consumer's fancy and purchasing power, which was Canada.

All the canners therefore got together and organized a nation-wide selling campaign at a cost of $300,000. This embraced newspaper and general magazine advertising, special promotion such as "Salmon Weeks" in the larger cities, special co-operation between the industry and distributors throughout the country and emphasis on the most appetizing ways to prepare canned salmon for the table. The campaign was to carry through well into 1950, but early response indicated that it was getting results. In addition to this co-operative effort, individual packers continued their own brand promotion program throughout Canada, and they made a successful effort to broaden their selling field by concentrating on products such as frozen salmon fillets as well as the canned pack.

Export Optimism Is Scant

What might happen to the British Columbia canned salmon overseas market during the coming months was anybody's guess. Frankly, there was not much optimism on the subject among the packers,

Here is a modern British Columbia gillnet fishing vessel of the type which takes a large percentage of the Canadian catch of Fraser River Sockeyes. This vessel, owned by Mitchell Sileck of Ladner, is featured by its extremely shallow draft of 21", which enables it to fish in the shallow waters of the Fraser delta. Power is a Nordberg gas engine. Note the reel on which the gillnet is wound by power.



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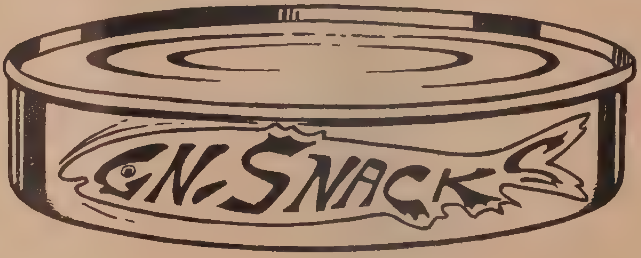

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U. S. CANNED FISH EXPORTS

Product	January-October 1949 (Pounds)	January-October 1948 (Pounds)	Principal Country of Destination	January-October 1949 (Pounds)	January-October 1948 (Pounds)
Salmon	11,734,711	2,161,554	United Kingdom	7,344,432	4,222
			Ireland	1,267,160	208,350
			Philippines	947,214	815,651
Sardines including Pilchards	69,689,019	15,373,997	Philippines	42,534,593	4,417,484
			United Kingdom	9,744,007	
			Canada	3,069,260	4,324,350
			Greece	2,781,855	418,760
Shrimp	1,284,261	327,497	Canada	921,497	26,580
			Venezuela	139,844	123,249
Total canned fish	87,963,537	52,668,771			
Total canned shellfish	9,502,453	14,051,520			
Total canned	97,465,990	66,710,291			
Total all edible fish and shellfish	105,559,408	73,732,962			

although there was this to be said: Almost any move would be an improvement over the present situation. Much would depend, of course, on the fiscal policies of the countries that normally are regarded as good customers—the United Kingdom for instance, Australia, New Zealand and South Africa, the British West Indies and a few Western European countries, and there was no telling what the story might be from day to day, let alone long-range season-to-season predictions.

As far as the United Kingdom was concerned, there was one point that made packers feel uneasy. This was the prospect of increasing Soviet Russian competition. In pre-war days Japanese salmon offered severe competition to the B.C. product in the British market, although the Empire preferential tariff offset it to some extent. In 1950 the Russian-packed salmon would be from the same fisheries as were operated by the Japanese before the war, and the Empire tariff preference is virtually non-existent.

The carryover from 1948's pack at the beginning of the 1949 season was limited pretty much to Cohoes and Chums, and a good deal of Coho was snapped up by the British as a part of the 1949 deal totaling 410,000 cases of different grades. Most of the Chum surplus was gradually worked off during the summer.

After September 18 large quantities of British Columbia-caught Pinks were shipped fresh to the United States for packing to qualify for the higher prices prevailing on Puget Sound. A considerable volume of Chums moved also, as there was no embargo on export of fresh or frozen fish of that grade.

B. C. Herring Market

Although there was a sharp reduction in overseas market demand for canned herring in 1949 as result of the withdrawal of European purchasing agencies from the field, British Columbia's curtailed pack found moderately ready sale.

There was a carryover of about 160,000 cases from 1948, but this was disposed of in 1949 before fall fishing started, most of the pack going to Hong Kong. The ultimate destination was reported to be interior China. Packers' price varied from approximately $5 to $6 per case.

Although last season's operations started without much indication of a favorable market, some packers with a large supply of tomato paste and cans decided they might as well take the risk and canning was undertaken on a reduced scale. It was generally expected, however, that the canned product would be only about one-third of the 1948 figure. Most of the herring went to the reduction plants for the production of meal and oil. The trade expected that most of the canned herring would be sold in the Orient, but whatever the volume it would be a far cry from the war years when the industry packed 1,000,000 cases a year.

Companies that packed herring in 1949 were: B. C. Packers, Canadian Fishing Co., A. B. C. Packing Co., Nelson Bros. Fisheries, National Fisheries, F. Millerd & Co., J. H. Todd & Son, North Shore Packing Co. and Colonial Packers.

It was a season marked by heavy production and several large individual catches. By mid-November the total catch of herring was said to be the heaviest on record. There was one notable set in Lambert Channel in which 1180 tons of herring were taken—a figure within 100 tons of the all-time high achieved the previous season.

CAPE CHURCHILL

One of the new 1949 salmon seiners in British Columbia was *Cape Churchill* which, with its sister ship, *Cape Chacon*, was launched at Sterling Shipyards, Vancouver, and placed in service by Canadian Fishing Co. Both vessels were designed by H. C. Hanson, Seattle, and are powered with Model D17000 "Caterpillar" diesel marine engines which develop 150 hp continuous duty at 900 rpm. Both boats are 65′ long, with 17′4″ beam and 8′3″ draft. They carry auxiliary diesels and Kaar radio. Nick Perdia is skipper of *Cape Churchill;* Ben Legas of Quathiaski Cove is master of *Cape Chacon.*—*Photo. Charles Wishart.*

Four-Year Cycles of Fraser River-Puget Sound Sockeye Salmon Pack, 1895 to 1949

Statistics represent 48-lb. cases of Sockeyes caught in the Fraser River district of British Columbia and adjacent waters of the state of Washington, whether canned in those districts or elsewhere—and not including other Sockeye canned in those districts. This accounts in large part for the discrepancy between these statistics and those appearing elsewhere in this issue.

British Columbia	1895—	395,984	1896—	356,984	1897—	860,459	1898—	256,101
Washington		65,143		72,979		312,048		252,000
Total		**461,127**		**429,963**		**1,172,507**		**508,101**
British Columbia	1899—	480,485	1900—	229,800	1901—	928,669	1902—	293,477
Washington		499,646		228,704		1,105,096		339,556
Total		**980,131**		**458,504**		**2,033,765**		**633,033**
British Columbia	1903—	204,809	1904—	72,688	1905—	837,489	1906—	183,007
Washington		167,211		123,419		837,122		182,241
Total		**372,020**		**196,107**		**1,674,611**		**365,248**
British Columbia	1907—	59,815	1908—	74,574	1909—	585,435	1910—	150,432
Washington		96,974		170,951		1,097,904		248,014
Total		**156,789**		**245,525**		**1,683,339**		**398,446**
British Columbia	1911—	58,487	1912—	123,879	1913—	719,796	1914—	198,183
Washington		127,761		184,680		1,673,099		335,230
Total		**186,248**		**308,559**		**2,392,895**		**533,413**
British Columbia	1915—	91,130	1916—	32,146	1917—	148,164	1918—	19,697
Washington		64,584		84,637		411,538		50,723
Total		**155,714**		**116,783**		**559,702**		**70,420**
British Columbia	1919—	38,854	1920—	48,399	1921—	39,631	1922—	51,832
Washington		64,346		62,654		102,967		48,566
Total		**103,200**		**111,053**		**142,598**		**100,398**
British Columbia	1923—	31,655	1924—	39,743	1925—	35,385	1926—	85,689
Washington		47,402		69,369		112,023		44,673
Total		**79,057**		**109,112**		**147,408**		**130,362**
British Columbia	1927—	61,393	1928—	29,299	1929—	61,569	1930—	103,692
Washington		97,594		61,044		111,898		352,194
Total		**158,987**		**90,343**		**173,467**		**455,886**
British Columbia	1931—	40,947	1932—	65,769	1933—	52,465	1934—	139,238
Washington		87,211		81,188		126,604		352,579
Total		**128,158**		**146,957**		**179,069**		**491,817**
British Columbia	1935—	62,822	1936—	184,854	1937—	100,272	1938—	186,794
Washington		54,677		59,505		60,259		134,641
Total		**117,499**		**244,359**		**160,531**		**321,435**
British Columbia	1939—	54,296	1940—	99,009	1941—	171,290	1942—	446,371
Washington		43,511		59,354		110,605		263,458
Total		**97,807**		**158,363**		**281,895**		**709,829**
British Columbia	1943—	31,973½	1944—	88,515	1945—	77,412½	1946—	331,292
Washington		19,179		37,509		53,054		280,018
Total		**51,152½**		**126,024**		**130,466½**		**611,310**
British Columbia	1947—	27,857	1948—	61,650	1949*—	80,000		
Washington		7,516		90,441		80,103		
Total		**35,373**		152,091		160,103		

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*Figures for 1949 are approximate only.

SALMON ESCAPEMENT OVER BONNEVILLE DAM

(In numbers of fish as recorded by U. S. Engineers)

Year	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
CHINOOK													
1938	*	*	*	*	22,371	8,221	6,556	34,765	197,294	2,302	263	27	271,799
1939	6	12	121	51,410	25,159	5,602	17,845	32,919	150,851	2,197	78	16	286,216
1940	....	....	504	37,253	28,621	7,028	14,938	58,643	240,515	3,765	287	34	391,588
1941	4	....	1,360	51,501	19,445	7,013	9,395	12,590	351,967	7,179	866	138	461,458
1942	1	15	34	9,506	30,915	11,816	12,821	27,581	305,935	4,485	639	190	403,938
1943	11	6	43	12,172	53,268	5,440	8,044	28,985	201,414	3,354	365	21	313,123
1944	1	2	65	15,670	15,127	4,363	8,241	55,468	139,254	2,388	164	20	240,763
1945	6	4	81	17,148	26,276	11,293	16,327	32,254	189,675	4,281	137	6	297,488
1946	1	2	25	14,179	53,313	30,051	20,960	45,421	277,075	4,521	170	25	445,743
1947	....	2	141	83,520	49,899	25,502	13,358	43,062	260,385	3,945	526	36	480,376
1948	10	....	251	21,205	20,262	44,137	23,100	35,934	270,238	3,928	467	23	419,555
1949	....	....	5	5,765	44,304	24,232	22,500	41,500	137,599	1,571	215	....	†277,691
STEELHEAD													
1938	*	*	*	*	6,622	2,382	19,455	29,231	46,618	2,264	339	92	107,003
1939	23	19	560	8,110	1,587	1,490	36,581	38,062	33,891	1,264	216	119	121,922
1940	5	96	1,688	4,125	998	4,489	61,175	46,071	64,377	1,786	292	59	185,161
1941	37	76	1,641	6,392	1,518	994	21,940	29,600	50,542	3,980	1,063	304	118,087
1942	4	37	256	3,642	4,159	1,588	19,905	41,973	76,622	2,411	566	182	151,345
1943	14	18	654	3,374	4,698	1,564	7,755	29,894	41,051	2,444	573	92	92,131
1944	50	157	1,019	6,142	2,227	1,169	21,868	24,508	35,907	6,129	1,119	226	100,521
1945	1,003	1,078	3,066	4,685	1,557	1,109	24,600	40,483	40,194	1,925	302	142	120.144
1946	63	551	3,040	9,839	5,481	3,265	20,559	58,356	38,296	2,067	262	769	142.548
1947	197	321	1,968	6,889	2,025	1,595	28.134	40.819	50,025	2,905	443	113	135,434
1948	154	119	1,631	4,473	1,170	1,895	33,191	53,621	40,609	1,742	381	76	139,062
1949	1	....	1,689	3,293	1,712	1,264	34,314	54,281	20,786	1,161	686	....	†119,187
SILVERS													
1938	*	*	*	*	....	....	....	3,070	10,995	972	141	7	15,185
1939	3	....	....	....	....	....	....	1,810	12,226	310	15	18	14,382
1940	3	....	....	....	....	....	....	1,451	10,212	213	33	5	11,917
1941	2	....	....	....	....	....	....	1,317	16,061	369	160	2	17,911
1942	....	....	....	....	....	....	....	1,193	11,061	147	....	....	12,401
1943	....	....	....	....	....	....	....	762	1,676	89	20	....	2,547
1944	....	....	....	....	....	....	....	1,052	3,022	103	29	2	4,208
1945	....	....	....	....	....	....	2	239	533	16	....	1	791
1946	....	10	4	....	....	....	22	227	3,609	1	....	24	3,897
1947	12	2	1	....	....	....	....	217	10,928	10	3	1	11,174
1948	1	....	....	....	....	....	11	158	3.893	10	3	5	4,081
1949	....	....	....	....	....	....	17	270	703	5	8	....	†1,003
BLUEBACK													
1938	*	*	*	*	1,025	17,811	53,864	2,097	235	6	2	....	75.040
1939	....	....	....	48	189	29,386	43,124	616	19	....	....	....	73.382
1940	....	....	....	....	206	59,639	85,885	3,063	11	1	....	....	148.805
1941	....	....	....	299	1,052	23,536	39,193	1,615	50	....	....	....	65,745
1942	....	....	....	....	13	12,624	41,301	1,477	60	....	....	....	55,475
1943	....	....	....	....	9	4,525	33,613	1,697	1	....	....	....	39.845
1944	....	....	1	....	16	3,098	11,171	659	126	....	....	....	15,071
1945	....	....	10	51	521	1.507	6.903	498	10	1	....	....	9,501
1946	....	....	....	9	67	7.805	64,704	1,746	21	2	....	....	74,354
1947	....	....	....	....	5	59,378	108,175	3.564	15	1	....	1	171,139
1948	....	....	....	....	....	12,023	117,652	1,849	13	4	....	....	131,541
1949	....	....	....	....	151	9,013	41,619	655	6	....	....	....	†51,444
TOTAL ESCAPEMENT BY MONTHS													
1938	*	*	*	*	30,018	28,414	79,875	69,163	255,142	6.789	1,544	199	471,144
1939	34	31	681	59,568	26,938	36,478	97,550	73,407	196,993	4,471	720	202	497,070
1940	8	96	2,192	41.378	29.825	71,156	161,998	109,228	315,115	6.625	1,447	132	739,200
1941	43	76	3.001	58.192	22,015	31,543	70,528	45.123	418,620	12,644	6,219	467	668,471
1942	5	52	290	13,148	35,087	26,028	74,027	72,224	393,678	7,743	2,354	388	625,024
1943	25	24	697	15.546	57,975	11,529	49,412	61,338	244,142	6,012	1,581	155	448,436
1944	52	159	1,085	21,812	17,370	8,630	41,280	81,687	178,309	8.811	1,978	344	361,517
1945	1,011	1,082	3,157	21,884	28,354	13.909	47,832	73,474	230.415	6,341	1,024	169	428,651
1946	64	563	3,069	24,027	58,861	41,121	106,245	105,750	319,004	6.894	1,241	881	667,720
1947	209	325	2,110	90,409	51,929	86.475	149,667	87.663	321,355	6,921	1,082	180	798,325
1948	165	119	1,882	25,678	21,432	58,055	173,954	91,563	314,754	5,876	3,817	582	697,877
1949	1	....	1,694	9,058	46,167	34,509	98,450	96,706	159,094	2,952	2,628	....	†451,259

*Data not available. Figures for 1938 are from May 7 to December 31, inclusive. †Eleven-month total.

Note—Escapement of Chums in any quantity occurs only in last three months of year; therefore Chums are not listed separately in table but are included in totals.

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Its fishway construction program largely completed along lines indicated by biological research, and the fishways functioning to full satisfaction in passing the Sockeyes—

The International Pacific Salmon Fisheries Commission in 1949 turned to a new phase of the problem of bringing the Fraser to its full salmon productivity.

This involves re-stocking barren streams and lakes and bringing into utilization as spawning and rearing areas the enormous potentialities of the Fraser basin which have not been utilized by the salmon.

The year 1949 saw significant developments in the long-term program of building the Fraser River salmon fishery towards its full potential.

Two major projects of the International Pacific Salmon Fisheries Commission were completed—building of the fifth and final fishway on Farwell Canyon to facilitate the passage of spawning Sockeye through the Chilcotin; and the establishment of the new salmon hatchery at Horsefly Lake.

The commission's engineering department made a good start in bank protection in the Hell's Gate region—strengthening a section of the canyon wall that was affected by the 1948 flood, and this work may turn out to be a preparatory step in the construction of a high level fishway at Hell's Gate at some future time.

Such a high level fishway, contemplated for some time by the commission, would increase the fishway range in Hell's Gate from 54 to 70′ and offer additional accommodation for some of the early spring runs in years when the water is at abnormal levels.

If such a fishway is built, it would be a smaller edition of the structures already installed—about 260′ long and 16′ high—and it would be built into the solid rock so as not to change the course and flow of the river in any way.

Farwell Project Completed

The last of the fishways at Farwell Canyon was finished late in the year. The first four fishways have been in operation for two years, but unfavorable weather had washed out a section of the fifth unit during the construction period, resulting in delayed completion of the project.

The Farwell Canyon fishways, like the Hell's Gate facilities, are of the slotted type, but of different design. They are only 8′ deep, compared with a depth of 40′ at the Gate, and the pools are only 8′ by 10′, compared with 18′ by 20′ at Hell's Gate. But the same basic formula has been followed.

Thus the program of actual construction on the Fraser, apart from the high-level fishway now being tentatively considered, has been concluded, with fishways at Hell's Gate, Farwell Canyon and the two fishways at Bridge River Rapids.

Lake Studies Deemed Important

One of the engineering projects initiated during the past year by engineers of the commission is that of lake measurement and bottom exploration, and this may prove to be one of the most important jobs so far undertaken in the overall program of restoring the Fraser River fishery.

This phase of investigation has followed in natural sequence the extensive channel clearance engineering represented by the fishway construction and other measures designed to prevent obstruction to the migrating salmon. Now that the problem of easing the passage of the fish up the river and its tributaries to favored spawning grounds has been effectively dealt with, it remains to be shown what lakes offer the best possibilities as spawning grounds and why; also, what lakes are capable of being improved, and how.

Such a survey embraces a new area of study, and nowhere else perhaps is the work being undertaken on a similar basis. The program started only during the summer of 1949 and already some seven lakes have been investigated. The commission's biologists now have a good working knowledge of the contour, depth and other physical characteristics of the lakes involved.

How Sounder Serves Science

The engineers sought a complete index of all the lakes in which the commission is interested. Much of the data was collected by survey parties on an 18′ outboard motorboat equipped with a Bendix depth recorder and various other apparatus usually associated with geodetic work rather than with the mapping of lake bottoms. The alternative use of hand-lines to collect such information would have been out of the question.

One of the things that the commission wants to ascertain is why certain areas are productive and others non-productive and this, of course, will eventually lead to a study of feed conditions, although contour and other physical data was considered fundamental as a preliminary. Engineers expect to have a pretty complete record of all the

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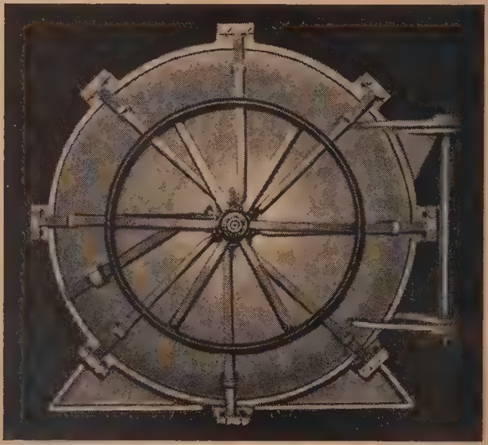

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Fraser River Sockeye Spawning Populations For 1949 and Cycle Years

Runs	1941	1945	1949
Early Stuart	6,300	28,200	581,000
Late Stuart	5,500	23,600	131,000
Early Fraser-Francois	500	1,300	26,600
Late Fraser-Francois	5,200	20,800	104,800
Bowron River	1,200	4,100	22,300
Chilko River	280,000	193,000	59,000
Quesnel River	1,200	3,000	12,200
Early Thompson River	300	3,500	13,300
Late Thompson River	*50	67,500	†15,000
TOTAL	300,250	345,000	965,200
Lower Fraser			
Birkenhead River	46,500	80,600	†74,000
Cultus Lake	18,200	9,200	†10,000
Pitt River	**	**	9,500
Weaver Creek	9,200	13,000	12,500
Silver Creek	2,000	2,000	2,100
Other streams not listed	68,650	22,500	....
TOTAL FOR ALL STREAMS	444,800	472,300	1,074,100

*Run blocked at Hell's Gate. Mostly Jacks on this cycle.

**Pitt River fish are predominantly five years old. No previous spawning records on the 1949 cycle.

†Preliminary figures.

lakes in the Fraser system within three years.

Restocking Phase Entered

The year saw the completion of the commission's field station and hatchery on the Horsefly River in the Cariboo district of British Columbia, and the first experiment carried out there was the artificial fertilization of more than 300,000 native Horsefly River Sockeye eggs to be hatched, reared, marked by fin clipping and released back into the river. The idea was to ascertain whether native fish could be brought back to their native spawning area. If successful, it would serve as a control experiment in connection with transplantations from one stream to another.

The second experiment to be undertaken there was aimed to rehabilitate the Sockeyes of the Upper Adams River in the Shuswap region, where the run was entirely destroyed following the Hell's Gate slide in 1913. Eggs were taken from a tributary of the Shuswap Lake where the run had not been eliminated and transplanted to the Upper Adams.

Capacity of the Quesnel station is 2,000,000 eggs and 1,500,000 fingerlings.

All interests likely to be affected by extension water diversion in the headwaters of the Fraser system for power purposes were disturbed by the Aluminum Co. of Canada's application for water rights on the Chilko as well as on the Nechako and other areas. Fisheries groups were anxious about the possibility of interfering with the Chilko level because of that area's importance in the breeding of Sockeyes. Government fisheries departments, the International Commission, Salmon Canners Operating Committee, organized fishermen and others filed briefs with Major R. C. Farrow, water rights comptroller, when he held a public hearing on Alco's application. They argued that power development in the Nechako, which is barren of Sockeyes, would probably not jeopardize their interests, but that power development on the Chilko did threaten the Sockeye fishery and it should not be proceeded with unless all other prospective sites had proven unsuitable and only then on condition that fisheries considerations were adequately studied and protected.

Spokesmen for the Aluminum Co. of Canada gave assurance that further consideration of the Chilko as a power source would be deferred until complete information on the Nechako is available.

Biological reports of the International Pacific Salmon Fisheries Commission last year continued to tell the story of rehabilitation in the Fraser system. The statistics on the rising population of some of the spawning grounds offered striking evidence. Some of the more impressive increases were these: Early Stuart runs, 6,300 Sockeyes in 1941, 28,200 in 1945 and 581,000 in 1949; late Stuart runs, 5,500, 23,600 and 131,000; Early Fraser-Francois, 500, 1,300 and 26,600; total for all streams, 440,800 in 1941, 472,300 in 1945, 1,074,100 in 1949.

Average Number Fraser Sockeye Per 48-Lb. Case

Year	U.S. Pack	B.C. Pack
1941	14.1	13.3
1945	13.5	12.2
1949	13.13	12.57

Size Variation in Sockeyes

Accompanying table shows the interesting fact that the Canadian-caught Sockeyes of the Fraser River are larger than those taken by the Americans.

Thus in 1949 the Canadians caught fewer fish than the Americans, but their canned pack was as large.

This condition doubtless results from the selective character of gill-nets, which take a larger percentage of the Canadian catch than of the American.

Weekly Red Salmon Packs on Bristol Bay, 1940 to 1949

Compiled from U. S. Fish & Wildlife Service Statistics. Figures in parenthesis indicate dates in July. Figures in first line of table are for the total pack (in full cases of 48 lbs. net) to dates shown; those following show weekly packs.

TOTAL to July	1940	1941	1942	1943	1944	1945	1946	1947	1948	1949
July	(6)221,687	(5)204,929	(4)149,175	(3)284,635	(8)431,421	(7)236,413	(6)241,948	(5)641,401	(8)482,252	(2)260,145
July	(13)139,853	(12)206,049	(11)142,145	(10)449,076	(15)347,149	(14)233,332	(13)241,405	(12)376,575	(10)464,488	(9)142,637
July	(20) 33,848	(19)127,573	(18) 93,174	(17)272,074	(22)116,514	(21) 84,681	(20) 88,520	(19)242,854	(17)169,806	(16) 86,865
July	(28) 4,606	(28) 31,316	(25) 44,323	(24)242,122	(29) 18,045	(28) 15,405	(27) 30,831	(26) 70,975	(24)112,111	(23) 30,675
To Close	....	....	7,357	27,174	....	....	....	3,226	7,680	3,722
TOTAL	399,994	569,867	436,174	1,275,081	944,129	569,831	602,704	1,335,031	1,236,226	524,044

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MARKETS
SHELLFISH

Stability at moderately high levels marked Pacific canned shellfish markets during 1949.

Sellers showed a disposition to maintain pricing at levels of proven consumer acceptance, rather than to risk adverse buyer reaction by price shifting, even where justified by rising costs.

Crab, clams and oysters all closed 1949 with the market firm, stocks low or lacking.

CANNED CRAB

Markets for canned Pacific crab were maintained in a fair degree of equilibrium through 1949 by some rather delicate balancing and shifting strategy, which saw operators in some of the districts shift in and out of crab canning and/or fresh-frozen packing, with varying results profit-wise.

The canned crab business went into 1949 with something of a carryover from the all-time record pack of 1948. This carryover, together with the sinking spell which business and commodity prices generally experienced during the early third or more of 1948, more or less naturally found some weakness in the attitude of some operators.

Canners were chary about meeting the crab fishermen's demands in the matter of price, and the result during the early part of the year was a delay in operations generally, and curtailed fishing for at least a couple of months.

This curtailment, linked with a general scarcity of crabs when fishing actually did get under way, served to firm the market situation somewhat; but this did not prevent the first of the fresh-and-frozen shifts referred to above. The market on fresh crabmeat toward the end of the main producing season weakened sharply and fell to 70c per lb., from the $1.10 price ruling a year before.

This condition served to switch some of the principal Alaska crab operators away from the fresh-frozen business in which they had concentrated the year before, and back into the canning with real energy.

The year 1949 closed-out with canned crabs very short. Fishing for the canneries was started at least a month earlier than usual, boats going to sea by mid-November, but the weather was so poor that it held production to nominal limits.

Pricing in the Pacific canned crab market developed rather marked stratification in 1949, with highly-featured brands priced at the top, followed by a body of substantial operators committed to market stability as a primary policy, and with a third strata whose price ideas were much more volatile.

For example, highly-featured brands were priced as high as $24.50 per case during much of the year.

The middle group supported a figure of $23 per case throughout the entire year, and this was still the quotation at the end of 1949. Policy was to hold fast to this figure, at which experience had shown crab would move satisfactorily, and to achieve the cumulative benefits of established and long-standing pricing, rather than to dare the possibility of an adverse consumer reaction to a higher figure.

In the more volatile group, prices shifted around during the year from a low of $21 to a high of $24, although a $22 quote prevailed for a considerable part of the selling season, and seemed to be the "going" figure for a considerable period.

1949—Weighted Average Shellfish Prices at Seattle—1949

Shellfish—	Unit	Dec., 1948	Jan., 1949	February	March	April	May	June	July	August	September	October	November
Clams, Butter	Lbs.	$0.06	$0.07	$0.07	$0.065	$0.065	....	....	....	....	....	$0.07	$0.07
Little Neck	Lbs.	.08	.08	.08	.075	.075	....	....	....	....	....	.08	.08
Razor	Lbs.	....	....	....	.19	....	....	....	.17	....	....	....	....
Clam Meat	Gals.	....	....	....	....	....	....	....	....	....	....	....	2.25
Crabs, Dungeness	Doz.	....	2.50	2.16	2.45	2.65	$2.70	$2.85	2.70	$2.80	$2.80	2.70	3.00
Crabmeat	Lbs.	....	.85	.70	.70	.76	.85	.90	.90	.85	.85	.85	.90
Lobster, California	Lbs.	....	1.00	1.00	1.00	6.00	1.00	....	....	....	....	....	....
Octopus	Lbs.	....	.05	.05	.05	.05	.05	.05	.05	....	.05	....	.05
Oysters, Schucked, Eastern	Gals.	....	7.00	6.00	6.50	6.50	6.00	....	....	....	....	....	....
Olympia	Gals.	....	20.00	20.00	20.00	20.00	20.00	20.00	20.00	20.00	20.00	20.00	20.00
Pacific	Gals.	....	4.11	3.87	3.84	3.85	3.85	3.90	3.86	3.90	3.90	4.05	4.00
Scallops, Bay	Gals.	....	6.00	6.00	6.00	5.50	5.00	5.00	5.00	5.00	5.00	5.00	5.00

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OREGON SHELLFISH — 1945-1949

CRABS (Dozen)						CLAMS (Pounds)				
1945	1946	1947	1948	1949	Months	1945	1946	1947	1948	1949
17,006	17,065	22,660	35,592	49,617	January	10,481	12,150	26,936	19,953	12,859
19,199	21,815	27,457	37,973	22,681	February	23,314,	30,471	33,572	15,875	5,924
17,315	30,732	40,555	63,516	52,571	March	53,499	61,310	47,126	33,408	23,428
41,706	34,074	46,527	87,353	60,127	April	29,843	33,600	31,537	38,856	29,063
47,675	80,626	78,649	96,885	63,815	May	29,458	44,313	58,325	61,816	53,253
43,305	34,414	50,317	34,841	54,591	June	57,569	67,755	38,980	50,750	55,802
10,820	13,694	20,806	15,171	20,251	July	67,578	41,399	66,384	55,484	37,109
10,413	5,783	7,188	9,098	10,919	August	34,961	31,983	33,868	40,914	28,472
4,226	4,568	3,813	4,969	5,293	September	21,768	21,130	13,353	15,631	14,805
9,135	8,859	3,686	4,205	*	October	12,505	8,883	3,201	11,211	*
9,807	12,834	8,621	2,662	*	November	9,341	18,237	12,533	5,518	*
12,419	14,814	3,971	9,206	*	December	10,822	12,519	3,199	6,473	*
243,026	279,278	314,250	401,471	339,865	Totals	361,139	383,750	369,014	355,889	260,715

* Data not available.

CANNED OYSTERS

Pacific canned oysters went to market promptly through 1949 despite the difficulties imposed upon the producing end of the industry by the Food and Drug Administration standards ruling. Final determination, reached in the United States Supreme Court Oct. 24, left Food and Drug the victor, but the industry continued actively packing under amended procedure in conformity with the decision.

A slight correction in pricing was made necessary following the court ruling and the popular buffet tins moved up 50c per dozen, from $3.50 to $4, for advertised brands.

It is interesting that this squat tin has climbed rapidly into dominant position in the Pacific trade, and that from 60 to 65% of Pacific oysters are now being canned in this size. The tin is the same diameter, but ¾" shorter, than the No. 1 Eastern Oyster can. Under the new ruling, the buffet tin cuts out 5 oz. drained weight of oysters, the same as the No. 1 E. O. under the former standards of fill.

The No. 1 E. O. can now cuts out 6½ oz., drained weight. Under the current Pacific oyster packing process, 9½ oz. of blanched oysters are put into each can in order to arrive at 6½ oz. drained weight. The oysters cook in their own nectar, with no brine added.

The 1949 Pacific oyster trade got off in 1949 far behind its market, inasmuch as weeks of freezing weather, occurring immediately after the first of that year closed the canneries for a period of nearly two months. In the meantime, orders piled up, and some of the packers did not get all commitments filled until May 15.

Fortunately, the May-June weather situation was favorable and packing was continued until June 19. This served to build-up some inventory for the summer season, but it went into consumption long before new packing started.

The trade again was in luck in the fall, for weather conditions permitted start of canning Sept. 19, believed to be the earliest date that Pacific oyster canning has ever been undertaken.

Despite active packing under favorable conditions, the packers at the end of 1949 reported inventories as nominal and orders active.

At year-end Pacific canned oyster prices stood:

Buffet tins, 5 oz. drained weight, $14.95 to $16.

No. 1 E. O. tins, 6½ oz. drained weight, $17.85 to $18.

No. 1 talls, $26.

PACIFIC CANNED CLAMS RAZORS and HARDSHELL

Canned razor clams recovered sharply marketwise in 1949, when a short pack and firm holding lifted the price to $14.85 and held it there steadily through the year. This was in marked contrast to the year before, when canned razor clams were begging for buyers in the spring and weak at $11.

They picked-up from that low figure, it's true; but the firm market of 1949 proved something of a reversal for the prophets of doom.

Washington's razor clam pack of 1949 was short as the crab bait buyers got a very large proportion of a small dig. This firmed the price in advance of the Alaska season, and a closely-held full-quota pack there did not serve to shake the $14.85 quotes announced earlier.

Pacific Hardshell Clams

Hardshell clam canning on the Pacific Coast is a comparatively small part of the hard clam industry of the country and its markets are made to considerable degree by the Maine prices, and the quotations on imported goods.

The late-1949 hardshell clam canning operation on Puget Sound was confined to few operators, all working primarily on clams hauled from British Columbia beaches.

Minced butter clams in halves were quoted at $4.80 per case of 24 and $9.50 per 4-doz. case.

Whole little neck clams were offered, and taken, at $5.55 and $11.

Butter clams packed whole in 1-lb. talls commanded $8.05 for the 2-doz. case and $16 for the full case.

OTHER PRODUCTS

Several Pacific canned shellfish specialties are currently being marketed in the rather restricted trade for delicatessen items and fancy groceries.

Notable in this category are smoked Pacific oysters, generally packed in glass, although occasionally in quarter-pound round tins.

Pacific oyster stew is another item which appears to bear future possibilities as an important item in the Pacific seafood products picture.

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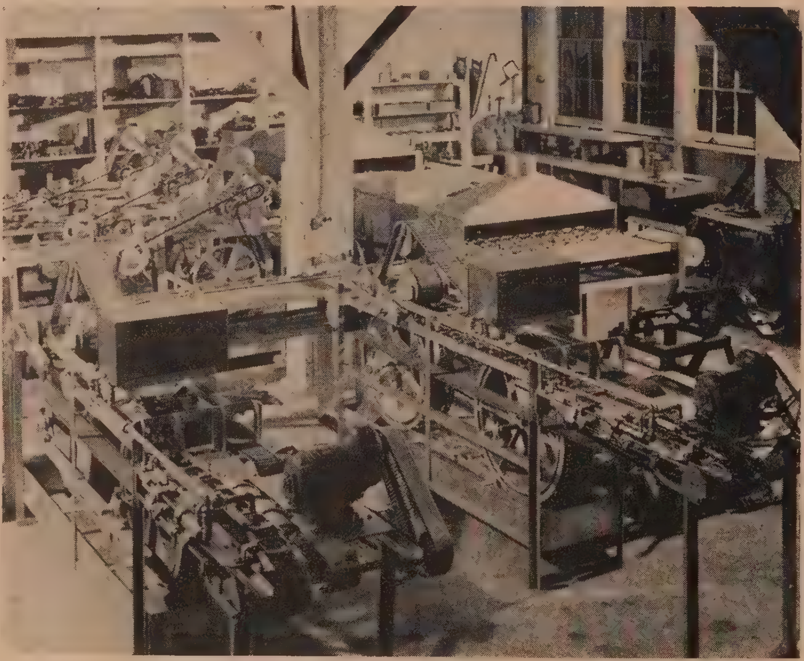

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California Canned Fish Packs

Kind of Fish and Can Size	1938 Cases	1939 Cases	1940 Cases	1941 Cases	1942 Cases	1943 Cases	1944 Cases	1945 Cases	1946 Cases	1947 Cases	1948 Cases
ALBACORE:											
4-lb. 12s	1,253	2,888	2,341	1,068							
1-lb.	23,995	29,625	13,275	14,761	3,376	19,715	14,973			990	4,286
½-lb	232,546	309,296	120,063	69,664	235,171	406,020	420,140	480,615	381,271	285,282	792,195
¼-lb.	31,595	14,866	10,062	6,747	958	6	10				①554
Total Albacore	**289,389**	**356,675**	**145,741**	**92,240**	**239,505**	**425,741**	**435,123**	**480,615**	**381,271**	**286,272**	**797,035**
ANCHOVY:											
No. 10 and 1-lb.									749	33,839	13,411
½-lb. and ¼-lb.									801	152,576	108,121
Total Anchovy									**1,550**	(c) **186,415**	**121,532**
BONITO:											
1-lb.	33,817	37,187	25,535	47,967	1,022	352		321	2,697	10,632	15,534
½-lb.	87,469	115,687	50,773	112,078	31,266	34,920	8,490	49,495	105,609	233,362	142,719
¼-lb.	942		1,012	1,145		353					
¼-lb. 100s	3,626	6,216	10,047	15,669							
Total Bonito	**125,854**	**159,090**	**87,367**	**176,859**	**32,288**	**35,625**	**8,490**	**49,816**	**108,306**	**243,994**	**158,253**
CLAMS: ½-lb						**11,131***	**45,206**	**225,431**	**39,944**	**6,556**	
CRAB: ½-lb									**15,195**	**6,141**	**1,540**
MACKEREL:											
1-lb	878,299	945,686	1,372,274	837,651	601,491	839,312	973,098	587,959	682,896	1,456,259	924,021
½-lb. 96s	70,109	20,243	56,737	4,652	112,699		13,324	1,624		13,225	1,132
½-lb.	10,482	2,600	6,031	1,444				34	(a) 33,772	(d) 52,715	6,136
Total Mackerel	**958,890**	**968,718**	**1,435,113**	**843,747**	**614,090**	**839,312**	**986,422**	**589,617**	**716,668**	**1,522,199**	②**971,646**
SALMON:											
1-lb.				1,125					248	6,345	574
½-lb							796	4,198	7,935	11,617	22,148
¼-lb. 100s						1,475	895	1,259	1,634	792	64
Total Salmon				**1,125**		**1,475**	**1,691**	**5,457**	**9,817**	**18,754**	**22,786**
SARDINE:											
No. 10 6s	8,670	15,180	10,939	9,632	1,106	32,523	71,002	70,310	883		
1-lb. ovals	1,321,568	1,876,271	1,598,196	2,290,716	1,422,739	1,445,955	1,485,811	1,211,361	725,071	620,676	1,019,355
1-lb. tall	376,859	619,145	648,155	1,963,472	2,006,561	1,679,945	2,052,469	2,431,521	2,245,377	873,934	1,168,434
½-lb	34,166	49,854	26,439	85,131	9,990	28,460	25,578	2,289	54,025	227,705	802,597
½-lb. oval	4,827	8,129	3,497	3,417							
½-lb. 96s	277,490	284,368	359,135	362,517	121,324	99,559	59,547	50,634	57,974	19,327	61,511
½-lb. fillet	97,277	141,900	151,518	182,703	75,386	44,935	20,584	86,386	10,735	10,967	27,874
10-oz.	5,751	12,350	4,021	20,561		3,514		28,992			
5-oz. 100s	316,733	316,289	382,683	447,952	185,427	46,787	374			57,260	120,413
¼-lb		148	247	10,079							
¼-lb. 100s	128	2,528	3,259	19,104	24,252	18,428	10,292	3,089	8,167	4,181	994
Total Sardine	**2,443,469**	**3,326,162**	**3,188,089**	**5,395,284**	**3,846,785**	**3,400,106**	**3,725,657**	**3,884,582**	**3,102,232**	**1,814,050**	③**3,203,028**
SHAD:											
1-lb.	7,655	9,193	12,187		20,058	11,516	12,541			344	2,477
½-lb.	3,589	3,472	3,556	68	4,887				(b) 589	1,434	
½-lb. roe	100	150	100	16				540		3	310
SQUID:											
9 and 7-oz.	20,167	23,926	34,603	21,587	941		7,701		24,946		
1-lb.						112,255	134,107	184,141	618,897	229,967	369,762
½-lb.						6,982					
Total Squid						**119,237**	**141,808**		**643,843**	**229,967**	**369,762**
SWORDFISH: ½-lb	445										
TUNA—BLUEFIN:											
1-lb.	16,971	18,572	31,273	13,319	8,749	2,321	6,070	7,269		111	175
½-lb.	262,486	169,927	233,853	125,525	249,566	172,544	367,934	290,589	333,001	370,782	98,298
12-oz.	734				179						
¼-lb.	25,333	15,025	17,739	13,990	1,684						
¼-lb. 100s	17,674	14,952	30,345	15,868	18,920						
Total Bluefin	**324,198**	**218,476**	**313,210**	**168,702**	**279,098**	**174,865**	**374,004**	**297,858**	**333,001**	**370,893**	**98,473**
TUNA—SKIPJACK:											
1-lb.	20,648	21,987	45,536	25,307	11,456	5,837	3,409	1,512		929	1,912
½-lb.	296,096	356,289	646,331	328,001	585,098	369,828	360,448	545,525	644,701	903,522	928,323
¼-lb.	19,954	25,140	47,974	52,666	101,854	6,275		1,137	3,588		
¼-lb. 100s	36,074	66,154	96,382	27,055	21,166	1,227					
Total Skipjack	**372,998**	**469,570**	**836,223**	**433,029**	**719,574**	**383,167**	**363,857**	**548,174**	**648,289**	**904,451**	**930,235**
TUNA—YELLOWFIN:											
4-lb. 12s	2,949	3,095	6,389	4,072	123						133
1-lb.	93,838	121,060	124,750	171,982	24,506	65,457	74,993	81,202	3,761	15,010	26,806
12-oz.	1,820	1,467	677	1,565	1,919						
½-lb.	979,228	1,542,474	1,569,534	963,195	691,120	619,122	744,976	1,415,091	2,209,083	2,627,344	3,308,820
¼-lb.	195,854	221,464	254,750	167,173	32,834	11,416	4	1,698	848		
¼-lb. 100s	10,490	37,732	49,719	17,658	9,406	214	7.510				
Total Yellowfin	**1,284,179**	**1,927,292**	**2,005,819**	**1,325,645**	**759,908**	**696,209**	**827,483**	**1,497,991**	**2,213,692**	**2,642,354**	**3,335,759**
TUNA—FLAKES:											
1-lb.	9,006	8,110	19,213	13,525	5,561	4,803	11,876	8,821	12,946	19,563	10,378
½-lb.	55,342	64,004	206,770	155,349	145,415	497,712	729,915	539,633	813,847	722,475	840,382
¼-lb.	128	126	1,337	1,675			16,009				
Total Flakes	**64,476**	**72,240**	**227,320**	**170,549**	**150,976**	**502,515**	**757,800**	**548,454**	**826,793**	**742,038**	**850,760**
TUNA—TONNO STYLE:											
½-lb.	8,193	10,119	22,143	5,322	383	10,401	15,365	16,198		33,762	22,663
¼-lb. 100s	59,211	67,221	162,089	28,516	23,096	16,198					
Total Tono	**67.404**	**77,340**	**184,232**	**33,838**	**23,479**	**26,599**	**15,365**	**16,198**		**33,762**	**22,663**
YELLOWTAIL:											
1-lb.	17,469	6,582	17,428	25,311	2,287	4,530	166		704	5,173	7,835
½-lb.	52,762	18,032	48,502	96,842	35,105	68,738	19,682	17,336	43,341	128,561	145,593
¼-lb. 100s			2.552	7,154							
Total Yellowtail	**71,234**	**24.614**	**68,482**	**129,307**	**37,392**	**73,268**	**19,848**	**17,336**	**44,045**	**133,734**	**153,428**
FISH PET FOOD:	287,403	384,427	832,091	1,027,903	197,403					1,087,040	1,153,802
GRAND TOTAL	**6,341,557**	**8,021,345**	**9,374,133**	**9,820,485**	**6,941,643**	**6,699,736**	**7,738,949**	**8,346,210**	**9,085,235**	**10,230,401**	④**12.274.848**
Total Tuna, including Bonito, Yellowtail	**2,598,732**	**3,305,308**	**2,530,151**	**3,868,394**	**2,242,220**	**2,317,989**	**2,801,970**	**3,456,442**	**4,555,397**	**5,357,498**	**6,346,606**

① These cases are 5¾ oz. glass.

* Combined with Clam Juice.

② Both Jack and Pacific mackerel are included in the one category, and the total includes 40,357 cases of miscellaneous sizes.

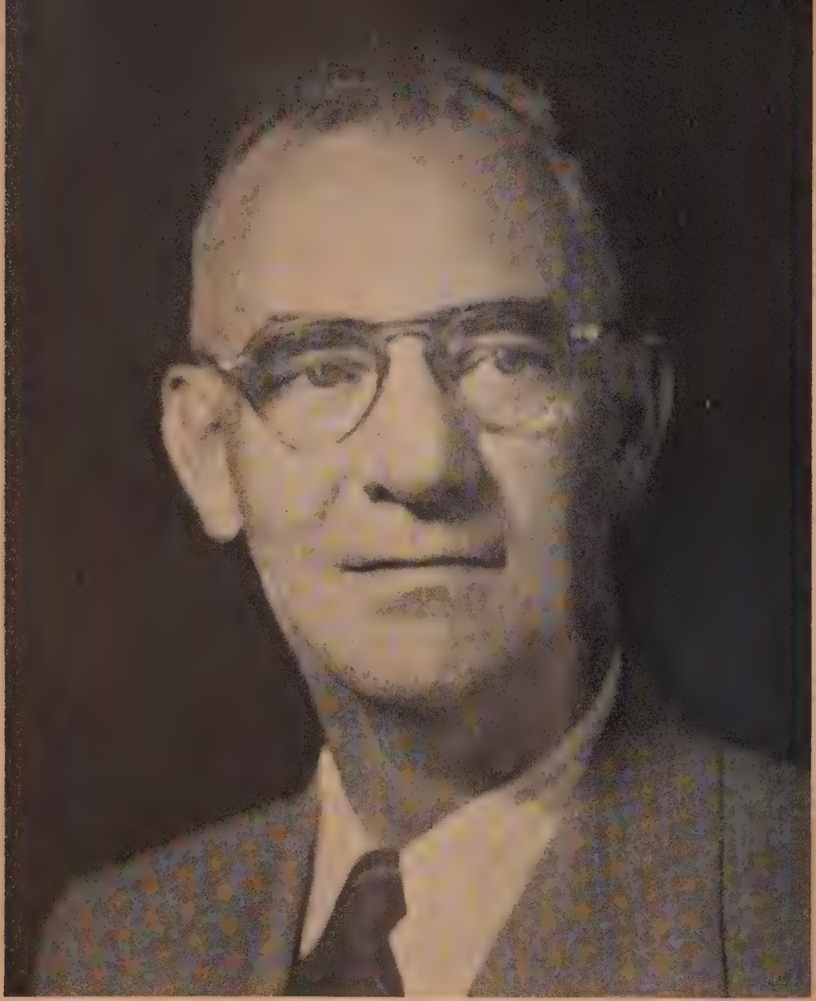
③ Includes 1,850 cases 3 oz. cans, paste. ④Total includes 81,359 cases of miscellaneous species not included in any of the above categories.

Note:—All cases are 48s unless otherwise specified. In a few instances, insignificant quantities of odd sizes have been included with nearest standard containers.

(a) 5¾ oz. size marked cans. (b) includes 296 cases ½-lb. Shad.

(c) No. 10 and 1-lb. sizes combined; ½-lb. and ¼-lb. sizes combined.

(d) Some 5-oz. sizes are combined with ½-lb. size.

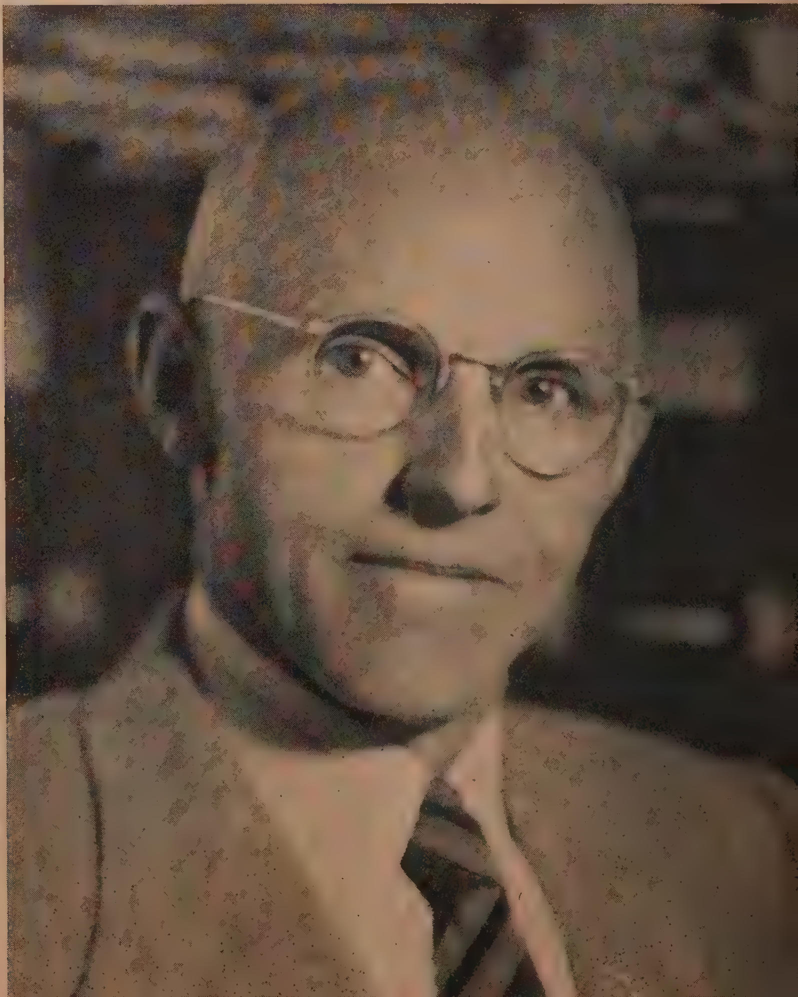


W. J. GRINNAN
Terminal Island, Calif.

Vice President and Sales Manager,
Van Camp Sea Food Co.

MAGNUS R. FLAUSE
Monterey, Calif.

President, Monterey Canning Co.



MARKETS

TUNA

With a second all-time high tuna packing year in succession, the California industry in 1949 found a softened market. This was no surprise, as 7,000,000-case packs require a bit of marketing.

The tuna industry reached the end of 1949 with no more carryover on hand than a year before—making it apparent that it has succeeded in selling full 7,000,000 cases in the course of the year.

Reviewing the national tuna market for 1949, it was apparent to Southern California packers that in spite of the so-called "business recession" and general lowering of canned food prices—a situation in which it was generally claimed canned tuna failed to keep in step—consumer sales showed little slackening through the year.

Evidence of this was shown in the fact that the carryover into 1950 was not materially larger than when 1949 started, although the total pack for the two years was about equal. The year 1949, however, posed more problems of a financial nature and of distribution, than in any year since the depression of the early 30s.

Yet, it wasn't the consumer who failed to support the industry and buy the product; but distribution pipe lines between packers' warehouses and grocery shelves often choked up.

Packers Advertise Actively

Private label business was often a worrying concern to producers. On the other hand, nationally-advertised brands were firm, both in price quotations and point of consumer sales throughout the year. Too, there was more advertising done in 1949. In addition to Van Camp Sea Food Company's always important national advertising campaign, French Sardine Company used more national media; Westgate Sea Products increased its sales markets and supported these with area campaigns with advertising and promotion.

Sun Harbor Packing Company opened a number of large sales markets in the east, advertising a brand label. West Coast Packing Corporation, Coast Fishing Company, Pan-Pacific Fisheries, California Marine Curing & Packing Company, Southern California Fish Corporation, San Diego Packing Company, Terminal Island Sea Foods, Ltd., South Pacific Canning Company and others all spent more advertising money in 1949, exploiting certain brands in spot markets.

"Chunk" Pack Important

One of the important developments of the year was the increased pack of "chunks" (called by various names by individual packers). When the year started only two Southern California packers were producing this pack. When it ended practically all canners were producing this style.

It was believed by many producers that, by the end of 1949 this pack had grown ahead of the solid pack. The merit of the chunk style product was that it offered a product with large pieces at a price several cents below fancy. Chunks were gradually replacing the Standard pack.

Probably the largest fluctuation in the canned-price structure was with White Meat (Albacore). The 1949 production in Southern California of 20,000 tons—5,000 tons greater than in 1948—caused radical drops in quotations as the summer advanced.

Quotations as the year began

AMERICAN CANNED FISH VALUES BY AREAS

YEAR	PACIFIC COAST						STATES OTHER THAN PACIFIC TOTAL	UNITED STATES TOTAL
	ALASKA	CALIFORNIA	OREGON	WASHINGTON	TOTAL	PERCENT OF NAT'L TOTAL		
1935	$26,072,966	$25,252,965	$ 2,851,987	$ 4,955,117	$59,133,035	78.8	$15,860,684	$74,993,719
1936	45,078,945	26,296,129	2,972,959	3,582,880	77,930,913	82.3	16,726,956	94,657,869
1937	45,041,499	30,741,773	4,163,681	5,276,928	85,223,881	81.2	19,713,750	104,937,631
1938	37,059,151	25,232,688	3,638,815	3,762,575	69,693,229	83.5	13,752,660	83,445,889
1939	34,775,988	31,639,354	4,622,664	5,192,077	76,230,083	79.0	20,228,510	96,458,593
1940	31,836,480	36,949.395	5,294,488	3,987,170	78,067,533	82.9	16,046,513	94,114,046
1941	56,453,007	39,830,950	7,704,434	7,130,960	111,119,351	80.1	27,564,806	138,684,157
1942	48,874,227	44,506,354	12,375,323	8,319,559	114,075,463	78.8	30,567,784	144,643,247
1943	58,479,130	46,842,918	7,242,950	2,975,728	115,540,726	81.8	25,615,584	141,156,310
1944	52,072,335	53.653.337	11,720,608	3.706.586	121,152,866	79.5	31.158.318	152,311,184
1945	45,491,662	60,219,179	12,543,519	7,326,616	125,580,976	82.0	27,219,595	152,800,571
1946	55,081,941	85,457,037	12,164,093	18,202,350	170,905,421	75.1	56,724,033	227,629,454
1947	89,135,362	116,493,682	20,626,850	24,949,347	251,205,241	80.9	59,475,179	310,680,420
1948	97,657,187	137,876,592	21,926,969	18,497,700	275,958,448	82.1	60,223,031	336,181,479

TERMINAL ISLAND SEA FOODS, LTD.

SEA KNIGHT
FANCY TUNA

●

Sea Knight
SEA FOOD

TUNA

Sea Knight—Fancy Yellowfin
Sea Mist—Fancy Bluefin
Calistar—Flakes and Chunks
Salomar—Striped Tuna

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FLAKES N' CHUNKS

California SARDINE FILLETS
SARDINETTES BRAND
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CALIFORNIA Sardines
IN TOMATO SAUCE SALT ADDED
CALIFORNIA Sea Knight
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CALIFORNIA Sardines

Salomar
BRAND
CONTENTS 15 OZ. AVDP.
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CALIFORNIA
Sardines
WITH WATER AND SALT ADDED

SARDINES

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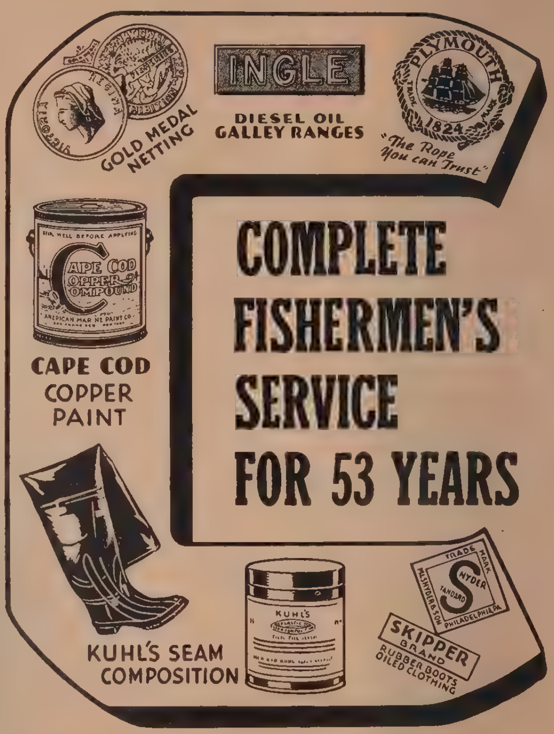
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on nationally-advertised Albacore brands opened at $22.00 Fancy; with private label from $19.00 to $21.00, basis 48½s. The opening quotation, as the 1949 season began in late June was $18.00 for solid, advertised brands; later quotations, f.o.b. cannery dropped to $17.00 to $16.50. Private label quotations, however, were as low as $14.50 fancy.

Light Meat solid pack opened the year with advertised brands at $17.25; private label, $15.25. Standard was from $15.00 to $16.00; Chunk style $15.75. The price break came in May, when advertised brands dropped to $16.25 Fancy; with varying advertising and promotional allowances made. Chunk style dropped to $13.75. The lowest prices offered for Light Meat Fancy, non-advertised, was around $13.00.

The brokers and volume buyers across were reluctant all year to make any heavy commitments for tuna, preferring these to be held in packers' hands, either in warehouses or spot shipments, and buying only according to current needs. Too, almost throughout the year canned tuna distribution was hampered by fears of lower price quotations.

Tuna's Special Problems

The canned tuna industry faces problems peculiar to itself. One of these is the impossibility of matching heavy consuming periods with peaks of production. In the early part of the year production is below demand; making a substantial carryover almost a necessity, in view of a consuming peak, the Lenten season.

Production is large during the summer and here it approaches the top-peak consuming period of the year. However, as fall proceeds, raw tonnage continues to pour in, as consumption declines. December, always a poor buying month for the wholesale trade, because of inventory-taking, taxes, etc., can be, as it was in 1948, the largest tonnage month of the year.

Tuna is a year-around canned product, and packers must be financially prepared for spot-cash paying for tremendous tonnages at high per-ton prices regardless of the rate of consumer demand. The result is, particularly on non-advertising business, price-cutting is often the only solution to a financial return of money paid for raw fish, packing expenses, etc.

The fact that a fairly even price quotation scale of nationally-advertised canned tuna was maintained throughout the year, shows the advantage of exploiting brands by expensive advertising and promotional campaigns. Throughout 1949 a strenuous effort was made to inaugurate and finance a plan to advertise, on a countrywide scale, canned tuna as such. It did not succeed, but the plan was still being explored when the year ended.

Tuna Prices Per Ton Paid Fishermen

Year	Albacore	Yellowfin	Bluefin	Skipjack
1917	$30	$50	$45	$40
1918	125	90	80	40
1919	200	90	80	40
1920	300	90	80	40
1921	145	80	80	60
1922	250	100	80	60
1923	300	80	75	60
1924	360	80	80	60
1925	200	80	80	60
1926	175	110	110	75-80
1927	Nominal	110	90	75
1928	$200 up	120	90	75
1929	300	120	110	70-80
1930	200	120	110	90
1931	200	120-100	90	90-80
1932	200	80	75	70
1933	200	100	90	80
1934	200	100	90	80
1935	125-160	100	90	80
1936	Nominal	105-110	95-90	85-90
1937	215	120	110	100
1938	215-130	120	110	100
1939	125	110	100	90
1940	140	110	110	100
1941	140	110-130	110-120	100-110
1942	300-400	190	180	170
1943	325	200	190	180
1944	325-390	200	190	180
1945	390	200	190	180
1946	390-440	200-280	190-270	180-260
1947	410-600	310-340	300	290-320
1948	550-740-425	340	330	320
1949	400-350	340-310	330-300	320-290

Note—Prices quoted are per ton of round fish in good condition landed at cannery dock. All fish rejected by inspectors, either as landed or after precooking, are deducted from the gross weight.

Figures given undertake to state the prevailing market level. Where a range in prices is shown it represents a definite change in market level in the course of the season, the movement being from the first to the second figures stated. Quotations for 1943 through 1945 are OPA ceiling prices for cannery fish, and represent the total amounts which may be paid the fishermen in cash or allowances, save for the cost of war-risk insurance. The lower figures in 1946 are ceiling prices and the higher represent levels attained after removal of OPA controls.

CANNED MACKEREL MARKETS

Marketing of Pacific mackerel was on a fair stable basis through most of 1949, although the later months of the year, with their heavy production of canned sardines, saw mackerel marked down to compete with sardines at lower levels.

Mackerel was one of the products most seriously affected by the Philippine canned fish import policy which went into effect Dec. 1, 1949, limiting imports of canned fish generally to 20% by value of the imports in 1948.

As the Philippines imported $6,510,500 worth of canned mackerel in 1948, imports to the island republic during the twelvemonth ending Dec. 1, 1950, are limited to $1,302,100.

Federal statistics show that, during the first 10 months of 1949, the Philippines took *46 per cent* of the American exports of canned mackerel.

At close of 1949, California canned mackerel was being quoted at $5.75 to $6 per case of 48 talls, Pacific variety; and at $6.25 to $6.50 per case, Jack variety.

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SARDINES

California canned sardine markets, after settling to low levels under the impact of improved fishing during the early part of the season of 1949-50, reversed their trend and finished the year 1949 with a show of firmness, although at price levels far below that to which the industry had been accustomed through the years of war and the subsequent period of scanty production.

The year 1949 ended with a note of optimism so far as the California sardine industry was concerned. True, prices for canned goods had ranged lower during the year, but on the other hand volume was up; and most observers felt that at least "the fish were back."

The 1948-1949 season had been featured by skimpy fishing. When the season opened in the fall of 1948 in southern California there were plenty of fish, so that by October 2, 1948, the bigger packers had dropped their prices $1 per case. For a while there was a fairly stable market, but as 1948 ended prices softened.

Packers found the early 1949 market indifferent to their offerings, while at the same time they had rather heavy inventories. No reason has been given for the slow market but most observers seemed to feel it was probably due to a lack of confidence on the part of buyers—they felt that the market would come down still further, and they were loathe to take an inventory loss.

U. K. Purchase Helps

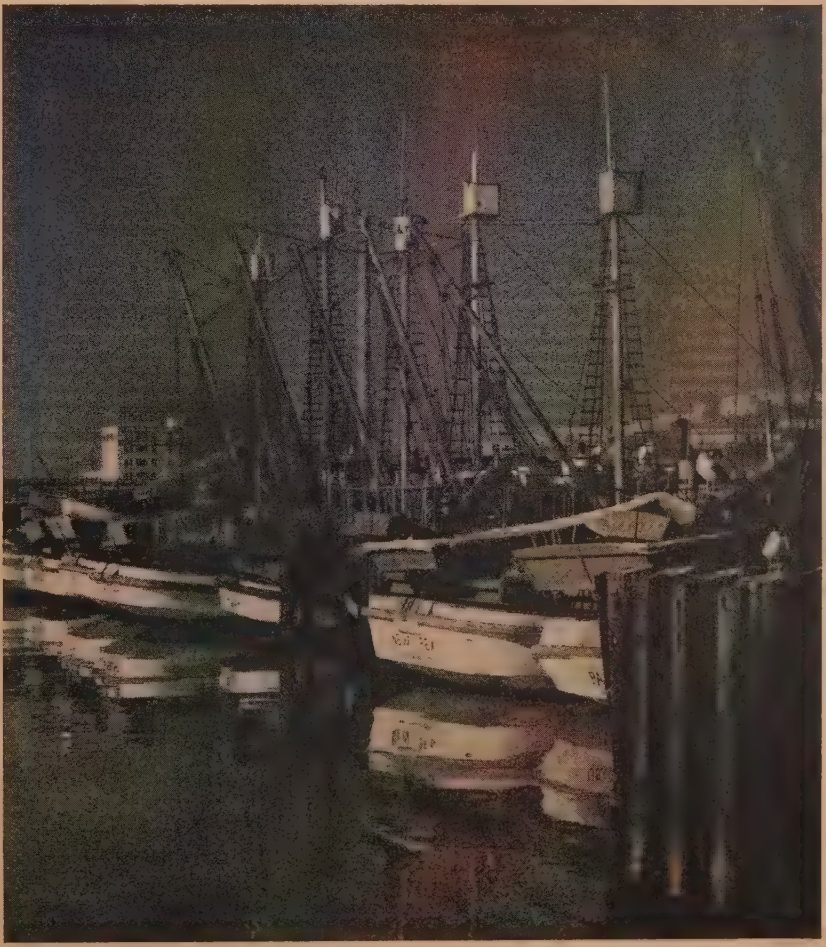
In May, 1949, California canners sold $2,500,000 worth of canned sardines when the United Kingdom received authorization for purchase of U. S. canned fish. It was thought by observers that they didn't get all the canned sardines they wanted. At this time it was evident that there were less than 500,000 cases inventory in the hands of producers. This knowledge straightened out the market, and toned it up.

Sardine canners in August entered the new season with no inventory on hand and with fishing late in getting started. They soon found there was a good quantity and quality of fish, and it looked like the long fish famine was over.

1949 Market Drops Fast

At the outset of the 1949-50 season there was very little forward buying, although the Philippine market was active. Canners were afraid of the $40 per ton price for fish that they were buying. Price arguments caused a delay in fishing

Half a dozen typical sardine seiners are seen here tied up in port at San Francisco during a full-moon period when California sardine fishing is suspended. This is because the schools of fish cannot be found by their phosphorescence during the period of the full moon.



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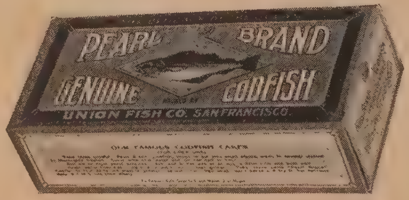
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More Than 40 Years

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FROZEN *and* CURED SEAFOODS

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CRAB MEAT
SALT ADDED

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Other "Sea Haven" Products Include: Fresh and Frozen Whole Shell Crabs, Fresh and Frozen Crabmeat, Albacore Tuna, Salmon, Smoked Oysters, Crab Legmeat and Smoked Crablegs.

KAAKINEN FISH COMPANY
and PORT ORFORD FISH COMPANY

Westport, Wash.
Tel. 2781-2783

Canneries at
Westport, Washington
Port Orford, Oregon

operations in August. In September came another cessation to fishing, and prices were adjusted to $32.50 per ton. At this time 1-lb. ovals in tomato sauce were selling for $7 per case, and 1-lb. talls, natural, for $5.25. By October ovals had slipped to $6 and talls were selling for $4.

The market continued on the weak side, until talls were selling for $3.75 and ovals for $5.75. Then one large packer decided to pull the plug out, and knocked the price down 75c per case on each item.

Very few packers made any serious effort to meet this price. The market rocked along until the middle of November when the Philippine market, which had been indifferent, came to life with a rush due to the fact that anticipated production in southern California had not come to pass. Export buyers figured that the bottom had been reached with small production in southern California, and small catches in northern California.

Current low prices of California canned sardines have reactivated old markets such as the Straits Settlements and Egypt, despite exchange difficulties.

During the year the domestic market was spotty and irregular, and buyers seemed to feel no confidence in canned fish prices. Some canners saw fit to extend price guarantees on floor stocks but without much effect on the market.

As the year ended it appeared that sardine prices had firmed up around $6 per case for ovals, and $4 for 1-lb. talls for both foreign and domestic markets.

CALIFORNIA FISH CANNING PLANTS

In the table below, the company name is followed by that of the president, principal owner, or managing director. Location given is that of the plant, not necessarily that of the company headquarters.This is followed by one or more letters indicative of the plant products. These products are represented as follows: (a) canned sardines; (b) canned tuna; (c) canned mackerel; (d) other canned fish products.

SAN FRANCISCO DISTRICT

American Sardine Co., Matt Martin	Benicia (a)
Bell Smoked Fish Co., Joe Tarantino	San Francisco (b, d)
Bering Sea Codfish Co., Joe Balestrieri	San Francisco (b, d)
F. E. Booth Co., Inc., A. H. Mendonca	San Francisco (a, b, d)
East Bay Fisheries, F. J. Mullins	Pt. San Pablo (a)
Hallmark Fisheries, Earl Hallmark	Eureka (b, d)
Hickmott Canning Co., J. H. Dempsey	Antioch (d)
J. D. Packing Co., James A. Davi	San Francisco (a, d)
Keystone Fisheries, Erling F. Week, Jr.	San Francisco (a, b)
Tom Lazio Fish Co., Tom Lazio	Eureka (b, d)
Martinez Food Canners, Ltd., John Costanza	Martinez (a)
Northern Packing Corp., George Christo	San Francisco (a)
Ocean Picnic Sportsmen's Cannery, Paul Thurmond	Eureka (b, d)
Pacific Sea Products, Ben Nichelson	San Francisco (b)
Paul's Cannery, Chester J. Paul	Crescent City (d)
Princeton Industries, Oscar Haber	Halfmoon Bay (a, b, d)
Red Rock Fisheries, J. H. Dempsey	Pt. San Pablo (a)
Romeo Packing Co., Joe Romeo	Half Moon Bay (a, b, d)

MONTEREY BAY DISTRICT

Aeneas Sardine Products Co., Inc., Frank E. Lucido	Monterey (a, d)
Atlantic Coast Fisheries Co., J. R. Perry	Monterey (a, d)
Calif. Frozen Fish Co., Sal Ventimiglia	Monterey (a, d)
Calif. Packing Corp., Don T. Saxby	Monterey (a, d)
Carmel Canning Co., J. R. Perry	Monterey (a, d)
Central Packing Co., Frank Lucido	Monterey (a)
Custom House Packing Co., Barney Kitchens	Monterey (a)
Edgewater Packing Co., Charles J. Broad	Monterey (a, d)
Enterprise Packers, Sebastian Sollecito	Monterey (a, d)
Hovden Food Products Corp., K. Hovden	Monterey (a, b, d)
Hovden Food Products Corp., K. Hovden	Moss Landing (a, b, d)
Monterey Canning Co., Magnus Flause	Monterey (a, d)
Monterey Fish Products Co., Frank Lucido	Monterey (a, d)
Peninsula Packing Co., G. M. Dollar	Monterey (a, d)
Port Costa Packing Co., Frank Richey	Moss Landing (a, d)
San Carlos Canning Co., C. D. Day	Monterey (a, d)
San Xavier Fish Packing Co., Frank E. Raiter	Monterey (a, b, d)
Santa Cruz Canning Co., Joe Olivieri	Moss Landing (a)
Sea Beach Packing Co., Sal Palma	Monterey (a, d)
Sun Harbor Packing Co., Jack Crivello	Monterey (a, d)

SAN PEDRO DISTRICT

Cal-Cap Fisheries, Tony Ostoich	Wilmington (a, b, c, d)
California Marine Curing & Packing Co., Max J. Gorby	Terminal Island (a, b, c, d)
California Sea Food Co., Meyer Simon	Long Beach (a, b, c)
Coast Fishing Co., J. R. Biven	Wilmington (a, b, c, d)
Franco-Italian Packing Co., Joseph Mardesich	Terminal Island (a, b, c, d)
French Sardine Co., J. J. Bogdanovich	Terminal Is. (a, b, c, d)
Golden State Sea Food Co., R. O. Gruwell	Long Beach (a, c, d)
Harbor Canning Co., George DeLaTore	Wilmington (a, c)
Laguna Packing Corp., Henry Scharff	Wilmington (a, b, c)
Lido Fisheries, Inc., Nick Kovacevich	Long Beach (a)
Newport Canning Co., W. Gregory Gorby	Newport Bch. (a, b, c)
Pan-Pacific Fisheries, Inc., Gerald Cigliana	Terminal Island (a, b, c, d)
Seaside Fisheries Co., Harry H. Steele	Long Beach (a, c)
South Pacific Canning Co., M. D. Marsh	Long Beach (a, b, c, d)
Southern California Fish Corp., G. K. Breitenstein	Terminal Island (a, b, c, d)
South Coast Fisheries, Inc., P. A. Kuglis	Terminal Is. (a, b, c)
Terminal Island Sea Foods, Ltd., H. C. Davis	Terminal Island (a, b, c, d)
Van Camp Sea Food Co., NK, IN & CP Plants, G. C. Van Camp	Terminal Island (a, b, c, d)
West Coast Packing Corp., Albert Vignolo	Long Bch. (a, b, c, d)
West Coast Packing Corp., Roy Roush	Newport Beach (a, c)
Western Canners, Inc, W. M. Longmoor	Newport Beach (a, c)
Wilmington Fisheries, Emil Guerrero	Wilmington (a, b, c, d)

PT. HUENEME DISTRICT

San Carlos Canning Co., C. D. Day	Hueneme (a, d)
Y-Ne-Me Canning Co., Mel D. Marsh	Hueneme (a, d)

SAN DIEGO DISTRICT

High Seas Tuna Packing Co., Earl M. Nielsen	PtLoma (a, b, c)
People's Packing Corp., Louis C. Strada	San Diego (b)
San Diego Packing Co., J. H. Dempsey	San Diego (a, b)
Van Camp Sea Food Co., Bates Harper	San Diego (b)
Westgate-Sun Harbor Company, W. Wade Ambrose, Jack Crivello	San Diego (a, b, c)

LOWER CALIFORNIA (MEXICO)

Cia. Productos Marinos, Romeo Jimenez	Cape San Lucas, B. C. (b, d)
Pesquera del Pacifico S. de R. L., Francisco Morales, Jr.	Sauzal, B. C. (a, b, c, d)
Pesquera del Pacifico, S. de R. L., Francisco Morales, Jr.	Cedros Island, B. C. (c, d)
La Industrial de Ensenada, Arturo Paredes	Ensenada, B. C. (a, b, c, d)
Industrial Maritima Mercantil, S. A.	Turtle Bay (d)
Pesquera de Topolobampo, S. de R. L., Jose Gutierrez	Topolobampo, Sinaloa (d)

VALUE OF PRINCIPAL CANNED FISH PRODUCTS 1921-48

Year	Pacific Salmon			Sardines		Pacific Tuna	Mackerel	Oysters	Shrimp	Clams	Crabs	Miscellaneous Fish Products	Grand Total
	Pacific Coast States	Alaska	Total	New England States	California								
	Value	Value	Value	Value	Value	Value	Value	Value	Value	Value	Value	Value	Value
1921-25*	$11,060,592	$29,457,922	$40,518,514	$5,781,523	$4,428,409	$5,751,385	....	$2,704,433	$3,928,434	$1,721,051	$71,087	$1,552,481	**$66,457,317**
1926-30*	12,772,490	38,329,082	51,101,572	6,281,996	9,494,787	8,990,774	$979,927	2,344,887	5,022,925	2,517,544	36,729	2,703,368	**89,474,509**
1930-35*	7,301,890	28,513,777	35,815,667	2,974,505	4,519,462	8,646,033	2,117,791	1,392,686	3,836,331	2,242,896	109,235	2,649,056	**64,303,662**
1936	5,309,438	44,751,633	50,061,071	5,740,454	7,302,273	14,715,391	3,542,895	2,180,869	4,672,198	2,976,297	130,753	3,242,053	**94,564,254**
1937	8,386,165	44,547,769	52,933,934	4,998,373	8,592,117	18,995,779	2,673,608	2,932,681	7,130,747	3,013,446	269,699	3,634,551	**105,174,935**
1938	5,728,892	36,636,897	42,365,789	2,367,045	7,102,358	15,183,636	2,896,220	1,886,476	4,872,393	3,189,628	260,134	3,322,210	**83,445,889**
1939	7,339,727	34,441,122	41,780,849	7,075,096	9,553,663	20,079,567	2,588,695	2,378,945	5,397,662	3,798,319	259,756	3,714,998	**96,627,550**
1940	6,575,176	31,474,492	38,049,668	3,736,394	8,975,257	23,727,560	4,101,369	2,526,859	4,318,325	3,778,363	308,890	4,659,256	**94,181,941**
1941	11,199,317	56,217,601	67,416,918	12,475,991	18,091,873	19,397,887	3,503,718	2,997,114	4,882,544	3,711,029	547,617	5,659,466	**138,684,157**
1942	13,673,968	48,300,209	61,974,177	11,691,981	15,509,964	30,742,493	3,693,082	3,598,703	7,347,330	3,791,058	1,755,065	4,893,094	**144,996,947**
1943	5,110,847	57,824,267	62,935,114	10,686,471	14,319,877	31,430,189	5,271,203	2,821,556	5,360,647	2,802,420	1,194,483	4,334,350	**141.156.310**
1944	5,187,136	51,196,140	56,383,276	13,528,541	15,225,919	40,836,117	7,033,997	2,283,429	4,854,799	3,820,612	1,361,458	6,983,036	**152 311.184**
1945	7,942,102	44,644,303	52,586,405	11,520,387	15.346,472	47,407.451	4,046,691	2,029,953	1,918.633	7,391,098	883,767	9,669,714	**152,800,571**
1946	17,003,459	53,157,194	70,160,653	19,548,531	19,895,649	59,135,823	7,575,291	5,249,272	8,428,735	11,145,047	4,720,119	21,770,334	**227,629.454**
1947	31,969,134	88,669,542	120,638,676	27,677,704	16,538,375	90,609,175	15,018,633	4,259,485	8,192,004	8,642,235	2,705,391	16,398,742	**310,680,420**
1948	24,008,466	96,528,730	120,537,196	26,921,926	21,892,893	112,612,296	9,850,834	4,777,531	7,791,313	8,329,639	4,846,494	18,621,357	**336,181,479**

* Average.

CALIFORNIA CANNED FISH PACKS — 1926 to 1948

Year—	Albacore Cases	Tuna-Bluefin Cases	Tuna-Skipjack Cases	Tuna-Yellowfin Cases	Tuna-Flakes Cases	Tuna-Tonno Cases	Bonito Cases	Yellowtail Cases	Mackerel Cases	Salmon Cases	Sardine Cases	Shad Cases	Squid Cases	Pet Food Cases	Misc. Cases	Total Cases	Year—
1926	66,001	70,283	274,970	165,561	8,162	131,553	44,186	18,940	550	11,761	2,163,755	....	23,536	....	63,794	3,043,052	1926
1927	126,699	50,008	382,175	366,395	7,631	207,496	22,277	24,530	10,961	8,435	2,625,412	6,485	....	....	44,396	3,882,900	1927
1928	99,751	132,342	194,491	503,077	16,733	117,821	18,900	5,657	388,471	4,585	2,815,330	7,475	2,056	....	124,809	4,431,498	1928
1929	132,638	89,728	347,132	612,810	18,613	119,805	47,674	15,296	611,503	5,503	3.941,459	9,791	6,556	....	53,925	6,012,433	1929
1930	145,531	309,604	268,130	878,382	29,561	74,985	69,341	21,343	127,333	11,202	3,069,524	1,796	25,271	....	127,236	5,159,239	1930
1931	144,973	46,462	278,398	613,344	19,441	36,220	38,254	2,041	101,217	14,070	1,794,991	....	19,827	44,372	4,855	3,158,465	1931
1932	65,377	8,687	305,007	678,313	16,291	42,247	42,114	3,115	89,176	2,005	1,001,845	201	....	67,256	50	2,323,052	1932
1933	49,391	7,581	273,041	937,792	13,090	41,200	36,560	33,518	760,126	3,076	1,422,860	....	1,740	112,725	1,369	3,698,293	1933
1934	82,182	332,411	267,328	1,097.912	30,502	55,163	52,554	9,816	1,214,191	820	2,051,726	....	4,257	80,224	1,104	5,324,084	1934
1935	112,149	438,501	338,493	1,254,478	41,658	82,205	128,065	81,177	1,761,186	874	2,529,262	5,039	8,781	122,826	2.269	6,920,625	1935
1936	53,884	334,377	480,260	1,418,045	24,873	58,537	104,078	112,128	1,228,348	....	2,820,742	13,124	12,282	128,384	5,178	6,803,815	1936
1937	91,159	215,535	763,916	1,582,477	50,438	137,737	129,572	47,480	793,780	147	2,983,204	6,361	5,531	179,230	100	6,986,616	1937
1938	289,389	324,198	372,998	1,284,179	64,476	67,404	125,854	71,234	958,890	....	2,443,469	11,244	20,167	287,403	545	6,341,557	1938
1939	356,675	218,476	469,570	1,927,292	72,240	77,340	159,090	24,614	968,718	....	3,326,162	12,665	23,926	384,427	150	8,021,345	1939
1940	145,741	313,210	836,223	2,005,819	227,320	184,232	87,367	68,482	1,435,113	....	3,188,089	15,743	34,603	832,091	100	9,374,133	1940
1941	92,240	168,702	433,029	1,325,645	170,549	33,838	176,859	129,307	843,747	1,125	5,395,284	68	21,587	1,027,903	16	9,820,485	1941
1942	239,505	279,098	719,574	759,908	150,976	23,479	32,288	37,392	614,090	....	3,846,785	24,945	941	197,403	....	6,941,643	1942
1943	425,741	174,865	383,167	696,209	502,515	26,599	35,625	73,268	839,312	1,475	3,400,106	11,516	119,237	....	11,131	6,699,736	1943
1944	435,123	374,004	363,857	827,483	757,800	15,365	8,490	19,848	986,422	1,691	3,725,657	12,541	141,808	....	45,206	7,738,949	1944
1945	480,615	297,858	548,174	1,497,991	548,454	16,198	49,816	17,336	589,617	5,457	3,884,582	....	184,141	....	225,971	8,346,210	1945
1946	381,271	333,001	648,289	2,213,692	826,793	....	108,306	44,045	716,668	9,817	3,102,232	589	643,843	....	56,689	9,085,235	1946
1947	286,272	370,893	904,451	2,642,354	742,038	33,762	243,994	133,734	1,522,199	18,754	1,814,050	1,778	229,967	1,087,040	199,115	10,230,401	1947
1948	797,035	98,473	930,235	3,335,759	850,760	22,663	158,253	153,428	971,646	22,786	3,203,028	2,477	369,762	1,153,802	204,741	12,274,848	1948

OUR Products
EATWELL BRAND
PACKED FOR FRENCH SARDINE CO., INC.
TERMINAL ISLAND, CALIF., U.S.A.
CONTENTS 15 OZ. AVOIR. OR 425 GRAMS
SARDINES
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EATWELL BRAND
PILCHARDS
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EATWELL BRAND
PACKED FOR FRENCH SARDINE CO., INC.
TERMINAL ISLAND, CALIF., U.S.A.
CONTENTS 15 OZ. AVOIR. OR 425 GRAMS
IN MUSTARD SAUCE
COLORED WITH TURMERIC
SARDINES

FRENCH Sardine Company, Inc.

J. J. BOGDANOVICH
PRESIDENT

TERMINAL ISLAND, CALIFORNIA

TUNA

Reaching above the 7-million-case level for the first time in history, the United States' tuna industry in 1949 hung up a new production record in spite of the fact that the California fleet was held in port by price considerations during a substantial portion of the year.

The California industry packed almost 6½ million cases in 1949.

Popularity of the "chunk pack" carried production of chunks, flakes, grated and shredded tuna above 1½ million cases.

Continuing its astonishing rise, the tuna industry in 1949 for the second successive year set an all-time-high pack figure, and this despite the fact that the tuna fleet substantially restricted its fishing operations during the year.

The pack in the continental United States passed 7 million cases for the first time. Total production in the Pacific States was 7,084,044 cases, of which 6,459,595 cases were the product of California.

To this total must be added the production of the Hawaiian Islands, as yet unavailable, to give the full domestic figure.

Beside record American production, the canned tuna imports of 1949 reached levels not attained since Japanese canned tuna flooded the American market in the mid-Thirties.

From Peru, from Japan, from Africa, from other countries, came canned tuna and tuna-like fish to share in the American market.

The American consumer demonstrated once again an astonishing appetite for tuna, and the industry entered 1950 with smaller carryover than that of a year before, notwithstanding the record production and heavy imports of 1949.

Demonstrating its capacity for development, for searching and finding the consumers' desires even before they were expressed, the California tuna industry in 1949 swung into production of the "chunk style" pack, made up of loins short-cut into bits and bites—distinct alike from "solid-pack" and from the "flakes," "grated" and "shredded' styles of packing. This popularity of this new pack carried the production of the broken styles generally to more than 1½-million cases—most of it lightmeat, of course, and much of it Skipjack.

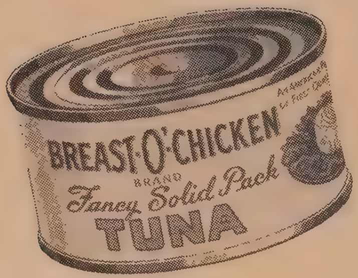
Southern California's tuna fishing and packing year actually started before 1948 ended. In late November packers notified vessel owners and crews they could no longer pay the prevailing raw-fish scale of: Yellowfin, $340; Bluefin, $330; Skipjack, $320; bonito, $235 and yellowtail, $320.

However, in spite of a heavy carryover of the canned product, packers generally retreated from this position.

1949—UNITED STATES TUNA PACK—1949

District—	Albacore Cases	Bluefin Cases	Skipjack Cases	Yellowfin Cases	Flakes Cases	Tonno Cases	Total True Tuna Cases	Tuna—Like Fishes Bonito Cases	Tuna—Like Fishes Yellowtail Cases	GRAND TOTAL Cases
San Diego	510,736	2,865	938,092	2,103,577	355,237	4,151	3,914,658	2,046	22,625	3,939,329
San Pedro	290,709	39,269	206,327	761,384	1,031,982	71,067	2,400,738	18,736	41,337	2,460,811
Monterey-San Francisco	35,600	......	6,049	17,806	......	......	59,455	......	......	59,455
Pacific Northwest	327,615	......	......	*177,332	119,502	......	624,449	......	......	624,449
TOTAL	*1,164,660*	*42,134*	*1,150,468*	*3,060,099*	*1,506,721*	*75,218*	*6,999,300*	*20,782*	*63,962*	*7,084,044*

NOTE—Table does not include tuna canned in Hawaii. *Includes some Skipjack. Segregation of Pacific Northwest lightmeat tuna pack as to species not available.



WESTGATE SEA PRODUCTS CO.

Packers of BREAST-O'-CHICKEN brand

merges with

SUN HARBOR PACKING CO.

Developers of one of the greatest of all tuna fleets and packing plants

to create

WESTGATE-SUN HARBOR CO.

providing

A combination of facilities outstanding in the catching, canning, and national merchandising of

TUNA

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James B. Lane
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K. J. Berglund
VICE-PRESIDENT for Finance

WESTGATE-SUN HARBOR COMPANY • SAN DIEGO 2, CALIFORNIA

CALIFORNIA PACK OF CANNED TUNA AND RELATED FISHES
1912 to 1949

	San Pedro District							San Diego District								
Year	Yellowfin Tuna (All Sizes)	Bluefin Tuna (All Sizes)	Skipjack Tuna (All Sizes)	Albacore (All Sizes)	Tonno, Italian Style (All Sizes)	Tuna Flakes, Yellowtail Bonito, etc.	Total (Cases)	Yellowfin Tuna (All Sizes)	Bluefin Tuna (All Sizes)	Skipjack Tuna (All Sizes)	Albacore (All Sizes)	Tonno, Italian Style (All Sizes)	Tuna Flakes, Yellowtail, Bonito, etc.	Total (Cases)	Grand Total, (Cases)	Year
1912	...	...	...	...	...	...	...	...	...	...	...	...	...	...	**75,900***	1912
1913	...	...	...	...	...	...	...	...	...	...	...	...	...	...	**77,500***	1913
1914	...	...	...	...	...	...	...	...	...	...	...	...	...	...	**217,000***	1914
1915	...	...	...	...	...	...	...	...	...	...	...	...	...	...	**237,365***	1915
1916	315,880	**	**	82,593	...	6,457	404,930	71,062	**	**	13,593	...	245	84,900	**489,830**	1916
1917	382,273	...	...	118,769	...	11,928	512,970	140,563	...	...	17,261	...	12,746	170,570	**683,540**	1917
1918	228,241	...	...	82,801	...	87,110	398,152	50,129	...	...	...	...	73,072	123,201	**521,353**	1918
1919	487,812	...	...	144,383	...	65,008	697,203	62,318	...	...	47,869	...	24,572	134,759	**831,962**	1919
1920	668,012	...	...	♦	...	1,534	669,546	167,633	...	...	♦	...	1,623	169,256	**838,802**	1920
1921	72,410	...	...	255,194	...	...	327,604	27,869	...	...	82,157	...	48	110,074	**437,678**	1921
1922	334,733	...	...	166,496	...	3,651	504,880	129,349	...	...	27,269	...	23	156,641	**661,521**	1922
1923	312,187	...	...	209,591	...	17,803	539,581	224,315	...	...	88,014	...	4,869	317,198	**856,779**	1923
1924	134,497	...	...	278,855	60,051	53,350	526,753	27,207	...	...	106,958	8,987	2,395	145,547	**672,300**	1924
1925	323,422	...	...	358,940	59,440	56,709	798,511	187,909	...	...	95,007	9,646	2,290	294,852	**1,093,363**	1925
1926	380,174	...	...	51,223	90,689	57,466	579,552	188,649	...	...	14,578	40,864	15,416	259,507	**839,059**	1926
1927	389,172	...	...	105,783	196,875	47,199	739,029	436,700	...	...	20,916	10,221	20,147	487,984	**1,227,013**	1927
1928	481,445	...	...	99,093	106,038	27,844	714,420	473,704	...	...	658	11,783	9,798	495,943	**1,210,363**	1928
1929	402,526	...	...	130,212	88,454	51,987	673,179	710,926	...	...	2,426	31,351	23,162	767,865	**1,441,044**	1929
1930	658,728	...	...	143,748	57,110	73,049	932,635	950,461	...	...	1,783	17,875	17,635	987,754	**1,920,389**	1930
1931	394,668	...	...	144,796	35,514	52,960	627,938	506,995	...	...	177	706	9,597	517,475	**1,145,413**	1931
1932	275,263	8,510	101,626	52,215	42,247	45,865	525,726	403,050	177	203,381	...	...	15,655	622,263	**1,161,151**	1932
1933	258,982	7,580	74,728	49,391	41,200	30,188	455,969	678,810	1	198,313	...	...	30,409	907,533	**1,363,502**	1933
1934	317,846	325,350	71,350	82,182	55,163	61,363	858,271	780,066	6,683	195,798	...	...	31,509	1,014,236	**1,872,507**	1934
1935	306,202	413,630	88,746	107,501	88,660	142,112	1,139,851	948,276	24,871	249,747	4,648	545	108,778	1,336,876	**2,476,727**	1935
1936	343,234	311,987	184,930	53,849	57,797	95,310	1,047,107	1,074,811	22,390	295,330	35	740	146,769	1,534,075	**2,586,182**	1936
1937	416,611	188,432	276,165	83,123	136,612	123,405	1,224,348	1,165,866	27,103	487.751	8,036	1,125	104,086	1,793,967	**3,018,315**	1937
1938	273,365	273,358	151,081	265,034	67,404	166,362	1,196,604	1,010,814	49,840	221,917	24,355	...	95,202	1,402,128	**2,598,732**	1938
1939	578,727	191,456	212,042	281,666	70,022	192,355	1,526,268	1,348,565	27,020	257,528	46,372	7,318	63,599	1,750,403	**3,305,308**	1939
1940	536,391	267,343	306,447	122,484	124,094	191,485	1,548,244	1,469,428	45,867	529,776	19,304	60,138	191,684	2,316,197	**3,868,394**	1940
1941	308,886	136,333	109.563	73.024	33,530	202,380	863,716	1,016,759	32.369	323,466	10.145	308	274.365	1,657,412	**2,530,199**	1941
1942	214,391	250,685	128,980	128,670	23,479	74,422	820,627	545,517	28,413	590,594	104,578	...	146,234	1,415,336	**2,235,963**	1942
1943	303,881	162,844	88 203	187,052	17,239	217,143	976,362	392,114	12,021	294,964	227 347	...	394,265	1,320,711	**2,308,416**	1943
1944	341,687	357.531	105,863	125,632	15,365	255,456	1.201.534	485.796	16,473	257,994	307.806	...	537,889	1,6[illegible]5.958	**2,807,492**	1944
1945	460,982	275,116	89,279	148,286	16,198	486,920	1.476,781	1,037,009	22,742	458,895	329,251	...	128,686	1,976,583	**3,456.442**	1945
1946	663.814	304,248	202,729	141,629	...	646,615	1,959,035	1,549,557	28,753	445,560	233,622	...	332,529	2,590,021	**4,555,397**	1946
1947	765,426	342,309	209,281	104,726	7,403	726,184	2,155,329	1,875,087	6,557	695,170	145,300	26,359	392,438	3,140,911	**5,357,498**	1947
1948	969,732	94,190	200,693	290,811	23,009	748,173	2,326,608	2,364,819	1,991	729,505	462,255	...	415,246	3,973,816	**6,350,354**	1948
1949	761,384	39,269	206,327	290,709	71,067	1,092,055	2,460,811	2,103,577	2,865	938,092	510,736	4,151	379,908	3,939,329	**6,459,595†**	1949

*No detailed figures available prior to 1916. Totals of these years estimated on basis of 48 lbs. net to the case.

**From 1916 to 1931, inclusive, Bluefin and Striped tuna were included with Yellowfin.

♦Included under other heads.

†Figures for 1949 are preliminary totals from official sources. The segregation of the pack into species is approximate only, being based upon the landings of raw fish of the several varieties. Figures for previous years have been corrected according to the official statistics of the California Division of Fish and Game, and cover full calendar years. Figures for the table as a whole cover actual cases of various can sizes, with the great majority cases of 48 half-pound flats.

NOTE:—Grand totals include canned at Monterey and San Francisco in addition to district totals given. These Monterey-canned quantities are: 1932—13,162 cases; 1939—28,637 cases; 1940—3,953 cases; 1941—9,071 cases; 1942—6,212 cases; 1943—11,343 cases; 1944—596 cases; 1945—3,078 cases; 1946—3,219 cases; 1947 -22.603 cases; 1948—49,930 cases; 1949 59,455 cases. The grand total for 1946 also includes 2,801 cases of Albacore and 321 cases of Yellowfin canned in the San Francisco district. The grand total for 1947 includes 13,643 cases of Albacore, 261 cases of Bonito, 22,027 cases of Bluefin, 1,841 cases of Yellowfin and 883 cases of Tuna Flakes canned in the San Francisco district.

Packers proposed that fish be paid for at the price prevailing at time of delivery. This would reverse a practice of 20 years' standing by which the price paid was that prevailing at time of departure. Sailings at the end of 1948 were at the guaranteed departure price, but only for one trip.

Carryover Heavy at Start of 1949

Vessel owners and crews, through unions, refused to agree to an arrival price and a long controversy ensued. Packers pleaded a heavy carryover, market difficulties and price recessions on canned foods generally as the basis for negotiations for a lower raw price scale.

There were a fair number of clippers at sea when 1949 began, and in January, San Diego flumed 4,324 tons and packed 174,688 cases; Los Angeles-Long Beach harbors received 1,814 tons, packing 70,493 cases. It was estimated the Southern California industry went into 1949 with a carryover considerably in excess of 1,000,000 cases.

On February 1 the packers decided to send their entire fleets to sea on a one-trip basis and to maintain the going price for raw material. By the middle of the month there were over 100 clippers at southern banks. The Los Angeles harbor tuna-seining fleet was either sailing or getting ready to go south.

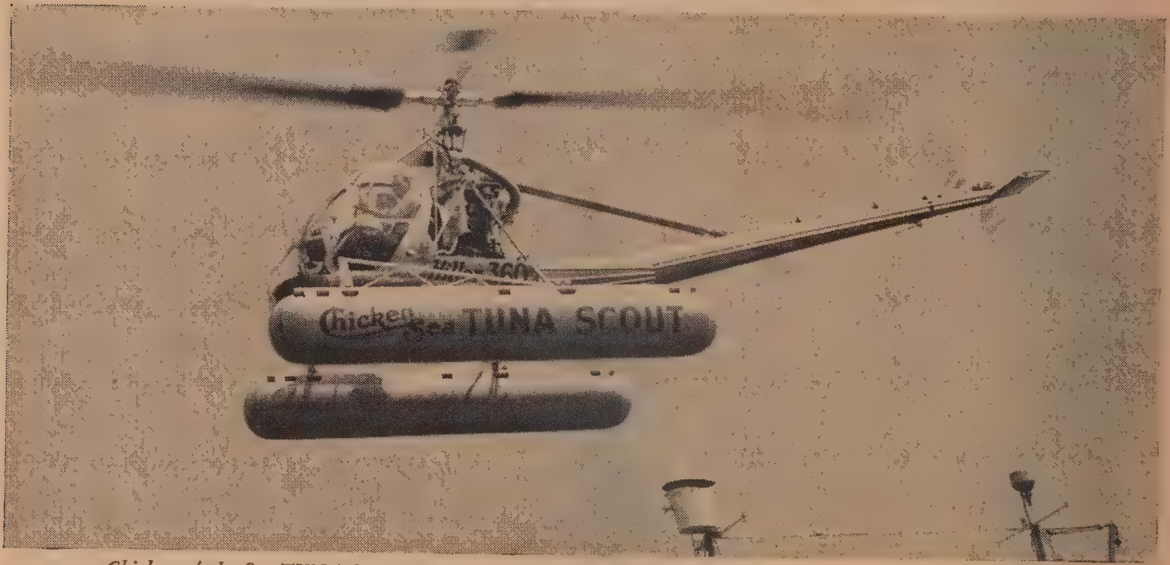
February saw 2,749 tons flumed at San Diego; 107,763 cases packed; LA-LB, 789 tons; 38,482 cases. One of the innovations of the month was the successful performance of the Jack Gorby automatic fancy packer, installed at California Marine Curing & Packing Company, Terminal Island.

The tuna mothership *Reina del Mar*, out of San Diego for southern banks, burned off Lower California February 18. First Bluefin of the season—a run which was later to be one of the big disappointments of recent years—was caught by the seiner *St. Christopher* at Guadalupe Island, delivered to Long Beach.

New Clippers Numerous in 1949

A number of new clippers and seiners joined the fleet in 1949. Included were the *Carol Virginia, Virginia R., May Queen, Mermaid, Mary S., Mary Jo, Mary E. Petrich* and *Yolande Bertin, Sea Magic, Excalibur* and *Santa Anita*, among clippers. New seiners were *Equator*, later lost after a short career; *St. Christina II* and *St. Teresa*. Ready to go fishing when the year began was the *Vera M*, a 110′ wood clipper,

Van Camp tuna clipper uses helicopter at sea to locate schools of fish


Chicken of the Sea TUNA SCOUT

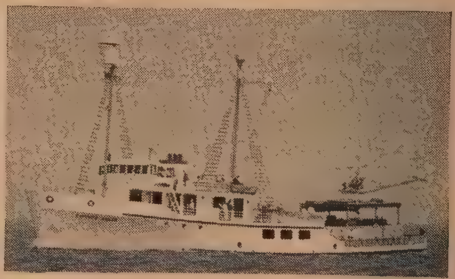
Chicken of the Sea TUNA SCOUT just after take-off from aft deck landing platform of Espirito Santo.

WHEN the Espirito Santo, one of the Van Camp fleet of tuna clippers, put out of San Diego Harbor recently, she carried a pontoon-equipped Hiller helicopter lashed securely to the canopy over her bait tanks. It was another "first" for this pioneer tuna-packing organization.

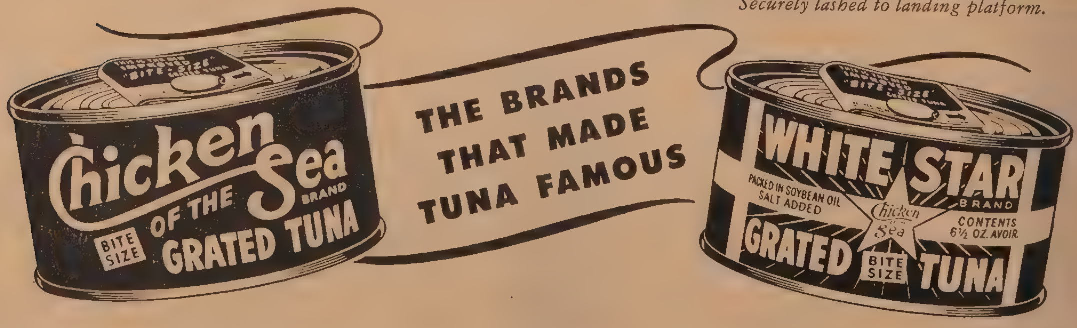
Traditionally, tuna boats have relied upon a sharp-eyed lookout in the crow's nest to spot schools of tuna. But the range of vision is limited. To broaden the sphere of observation, Van Camp plans to equip its fleet with helicopters, so that schools of tuna can be located quicker. This will cut down the time necessary for a full catch, and voyages will be shorter and more frequent. This will mean greater profits for the fishermen and larger packs to take care of the ever-increasing demand for "The Brands That Made Tuna Famous."

VAN CAMP SEA FOOD CO., INC.
Terminal Island, California

Coming in for landing during test.



Securely lashed to landing platform.


Chicken of the Sea
BRAND
BITE SIZE
GRATED TUNA
THE BRANDS THAT MADE TUNA FAMOUS
WHITE STAR
BRAND
PACKED IN SOYBEAN OIL
SALT ADDED
Chicken of the Sea
CONTENTS 6½ OZ. AVOIR.
GRATED
BITE SIZE
TUNA

1949—California Receipts of Tuna by Months and Districts—1949

Species	January			February			March		
	San Pedro Pounds	San Diego Pounds	Total Pounds	San Pedro Pounds	San Diego Pounds	Total Pounds	San Pedro Pounds	San Diego Pounds	Total Pounds
Albacore	80,311	....	80,311	33,702	2,998	36,700	....	131,621	131,621
Bonito	....	29,487	29,487	1,986	12,232	14,218	....	10,171	10,171
Bluefin	109,985	....	109,985	969,363	....	969,363	....	....	....
Skipjack	392,451	1,091,985	1,484,436	211,637	1,466,842	1,678,479	1,265,061	2,513,056	3,778,117
Yellowfin	3,119,947	7,370,815	10,490,762	544,536	3,923,057	4,467,593	6,510,602	8,080,120	14,590,722
Yellowtail	8,147	126,600	134,747	43,052	93,740	136,792	36,791	131,969	168,760
Total	**3,710,841**	**8,618,887**	**12,329,728**	**1,804,276**	**5,498,869**	**7,303,145**	**7,812,454**	**10,866,937**	**18,679,391**

Species	April			May			June		
Albacore	....	....	....	....	....	....	2,100	76,217	78,317
Bonito	....	....	....	31,078	546	31,624	256,429	1,152	257,581
Bluefin	....	....	....	7,350	....	7,350	93,849	....	93,849
Skipjack	1,543,391	3,262,626	4,806,017	1,486,960	3,461,848	4,948,808	3,122,729	3,825,048	6,947,777
Yellowfin	9,072,631	13,240,190	22,312,821	11,644,845	14,085,495	25,730,340	11,274,191	13,790,924	25,065,115
Yellowtail	20,627	63,158	83,785	156,112	135,416	291,528	1,760,808	406,843	2,167,651
Total	**10,636,649**	**16,565,974**	**27,202,623**	**13,326,345**	**17,683,305**	**31,009,650**	**16,510,106**	**18,100,184**	**34,610,290**

Species	July			August			September		
Albacore	4,866,417	11,033,277	15,899,694	4,030,688	8,096,831	12,127,519	6,949,853	3,233,354	10,183,207
Bonito	756,353	....	756,353	425,619	....	425,619	168,649	18,710	187,359
Bluefin	704,843	6,359	711,202	1,130,957	21,037	1,151,994	352,956	7,579	360,535
Skipjack	1,427,221	2,671,256	4,098,477	3,785,052	7,469,605	11,254,657	5,341,601	12,496,586	17,838,187
Yellowfin	5,861,178	7,869,764	13,730,942	4,372,981	10,104,383	14,477,364	3,583,155	9,350,646	12,933,801
Yellowtail	455,700	92,579	548,279	2,624,867	15,238	2,640,105	1,247,961	247,224	1,495,185
Total	**14,071,712**	**21,673,235**	**35,744,947**	**16,370,164**	**25,707,094**	**42,077,258**	**17,644,175**	**25,354,099**	**42,998,274**

Species	October			November			December		
Albacore	1,818,850	2,557,401	4,376,251	259,178	469,718	728,896	150,000	5,000	155,000
Bonito	9,069	5,153	14,222	14,014	9,813	23,827	3,000	20,000	23,000
Bluefin	2,500	58,743	61,243	....	....	....	....	....	....
Skipjack	654,438	9,394,540	10,048,978	2,634,756	5,157,721	7,792,477	2,360,000	3,278,000	5,638,000
Yellowfin	1,533,664	7,810,209	9,343,873	5,604,393	10,412,408	16,016,801	11,028,000	10,224,000	21,252,000
Yellowtail	30,195	114,812	145,007	181,084	56,679	237,763	16,000	130,000	146,000
Total	**4,048,716**	**19,940,858**	**23,989,574**	**8,693,425**	**16,106,339**	**24,799,764**	**13,557,000**	**13,657,000**	**27,214,000**

Annual Recapitulation

Species	San Pedro District 1949 Landings in Pounds	San Diego District 1949 Landings in Pounds	Monterey District 1949 Landings in Pounds	**California Total 1949 Landings in Pounds**	Species
Albacore	16,501,378	25,606,417	1,689,721	**43,797,516**	Albacore
Bonito	1,666,197	107,264	....	**1,773,461**	Bonito
Bluefin	3,149,098	93,718	222,705	**3,465,521**	Bluefin
Skipjack	23,976,648	56,089,113	248,649	**80,314,410**	Skipjack
Yellowfin	69,105,379	111,063,503	610,787	**180,779,669**	Yellowfin
Yellowtail	6,581,344	1,614,258	....	**8,195,602**	Yellowtail
Total	**120,980,004**	**194,574,273**	**2,771,862**	**318,326,179**	**Total**

NOTE—Monterey landings are included with San Pedro in monthly accounts but are listed separately in the annual recapitulation by species.

and also ready was the *Hortensia Bertin.*

Lost during the year were the clippers, *Conqueror, Rajo, Liberator, Florence L and Sun Jacket, Sun Valley* and *Dominator;* seiners *Equator, Yankee Mariner, Vashon* and *San Francisco.*

March tonnage was: San Diego, 5,431 tons, with 213,561 cases packed. LA-LB district, 3,905 tons; 78,432 cases. With tonnage beginning to build up, packers became uneasy again. On March 21 Sun Harbor Packing Company announced it would no longer guarantee the departure price of $340, based on Yellowfin.

MISS CALIFORNIA

Miss California, owned by James and Nick Gangitano, is typical of the smaller California Albacore craft. She is 36' in length and powered with a Pacific diesel, driving through Snow-Nabstedt gears and a Monel shaft.

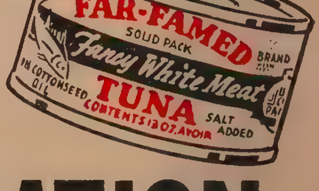
TUNA
SARDINES
MACKEREL

TOMATO PASTE

SEA VIEW
BRAND
CALIFORNIA
Sardines
PACKED WITH WATER AND SALT ADDED

AT ITS BEST!

SEA VIEW
BRAND
CALIFORNIA
MACKEREL
PACKED WITH WATER AND SALT ADDED
CONTENTS 15 OZ. AVOIR. METRIC


FAR-FAMED
BRAND
SOLID PACK
Fancy White Meat
IN COTTONSEED OIL
TUNA
SALT ADDED
CONTENTS 13 OZ. AVOIR.

WEST COAST PACKING CORPORATION

LONG BEACH **NEWPORT BEACH**

1687 W. WATER ST.
LONG BEACH
CALIFORNIA

TUNA IN PURE OLIVE OIL
TONNO
SALT ADDED
GENOVA
BRAND

SEA VIEW
BRAND
LIGHT MEAT
TUNA
LIGHT MEAT

CULPEPPER ISLAND, ONE OF THE GALAPAGOS, SEEN FROM *SCARLET QUEEN*

[illegible] taken from lonely seas around remote islands, such as Culpepper, one of the Ecuadorean archipelago lying across the Equator. In these seas some of the best tuna catches are taken. *Scarlet Queen,* from which the island was photographed, is 165 ft. in length, greatest of all tuna [illegible] in December, 1949, landed the largest catch of tuna ever taken on a single trip—450 tons. The little seaplane carried on the bait tank is becoming a common item of equipment on big clippers, which find aircraft of great value for scouting fish—bait as well as tuna.

On April 20 the Southern California industry was shocked by the sudden death of R. L. "Doc" Puccinelli, president and general manager, Pan-Pacific Fisheries, Inc., Terminal Island. He was succeeded by his brother-in-law, Gerald "Red" Cigliano. William C. Moorehead remained as secretary of the company. On May 5 the fraternity received another shock when E. M. Darrimon, president, San Diego Packing Company, died equally suddenly at San Diego. He was succeeded by J. H. Dempsey.

During April an organization composed of small tuna-vessel owners was formed at San Diego, the San Diego Commercial Boat Owners, Inc., with John N. Kelly as president.

Tonnage continued to pour into both San Diego and the northern port in April, as the major clippers completed the initial cruise of the year and seiners were arriving at Los Angeles harbor. San Diego received 8,282 tons, processed 324,805 cases; LA-LB unloaded 5,317 tons, packed 214,413.

Price Dispute Produces Tie-Up

The smoldering dispute between packers and fishermen over the raw price broke into the open again in early May. A number of raw prices were offered ranging from $280 to $300 for Yellowfin at San Diego. Los Angeles harbor prices generally held, but later broke as San Diego's fleet began tying up.

The top offered price of $300-290-280 was unacceptable to vessel owners represented by the American Tunaboat Association, which ordered its fleet tied up on May 18. The Fishermen's Cooperative Association, representing purse seiners followed.

1949—California Yellowfin Operations—1949

San Pedro			San Diego		TOTAL CALIFORNIA	
Pounds Received	Cases Canned	Months	Pounds Received	Cases Canned	Pounds Received	Cases Canned
3,119,947	41,648	January	7,370,815	142,876	10,490,762	184,524
544,536	11,057	February	3,923,057	76,702	4,467,593	87,759
6,510,602	88,149	March	8,080,120	146,810	14,590,722	234,959
9,072,631	90,727	April	13,240,190	229,329	22,312,821	320,056
11,644,845[1]	100,942[2]	May	14,085,495	242,910	25,730,340	343,852
11,274,191[3]	101,792[4]	June	13,790,924	277,032	25,065,115	378,824
5,861,178	37,548	July	7,869,764	140,186	13,730,942	177,734
4,372,981[5]	43,609[6]	August	10,104,383	178,101	14,477,364	221,740
3,583,155[7]	36,911[8]	September	9,350,646	173,923	12,933,801	210,834
1,533,664[9]	17,045[10]	October	7,810,209	131,538	9,343,873	148,583
5,604,393	31,448	November	10,412,408	181,828	16,016,801	213,276
11,028,000	178,314	December	10,224,000	182,342	21,252,000	360,656
74,150,123	779,190	TOTALS	116,262,011	2,103,577	190,412,134	2,882,767

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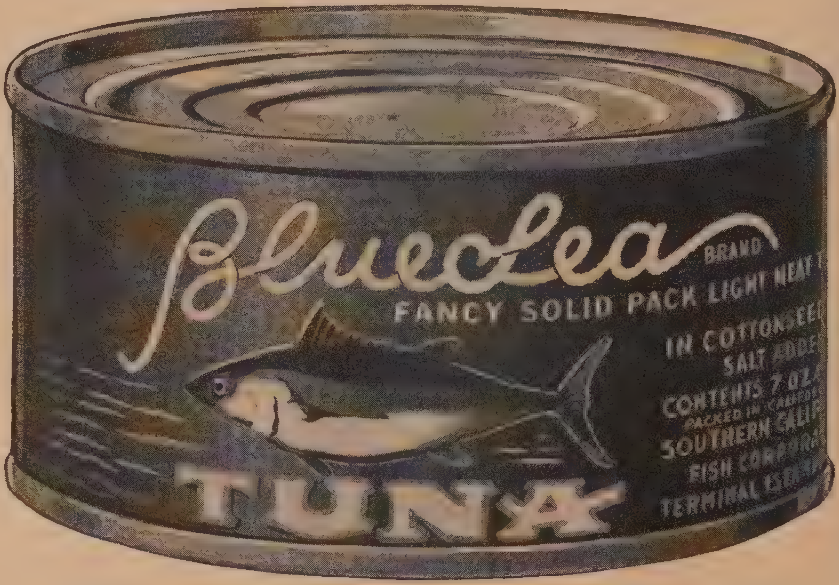
[1] Includes 102,561 lbs. landed in No. Calif. [2] Includes 3,252 cases canned in No. Calif. [3] Includes 209,902 lbs. landed in Northern Calif. [4] Includes 4,584 cases canned in Northern California. [5] Includes 13,000 lbs. landed in Northern Calif. [6] Includes 331 cases packed in North Calif. [7] Includes 254,154 lbs. landd in Northern Calif. [8] Includes 7,140 cases canned in Northern Calif. [9] Includes 31,170 lbs. landed in No. Calif. [10] Includes 2,409 cases canned in No. Calif.

SOUTHERN CALIFORNIA FISH CORPORATION

offers the trade—


Blue Sea
BRAND
FANCY SOLID PACK LIGHT MEAT
IN COTTONSEED
SALT ADDED
CONTENTS 7 OZ.
PACKED IN CALIFORNIA
SOUTHERN CALIF
FISH CORPORATION
TERMINAL ISLAND
TUNA

A SUPER TUNA BRAND

The brand of "Blue Sea" is a pledge of uniform high quality supported by more than 50 years experience in canning of California fishery products.

●

"Blue Sea" SARDINES AND "Sunset" MACKEREL

We Will Welcome An Opportunity to Serve Your Requirements

Southern California Fish Corporation

Established 1892

TERMINAL ISLAND LOS ANGELES HARBOR CALIFORNIA

1949—SAN DIEGO TUNA PACK BY MONTHS—1949

Species	Jan.	Feb.	March	April	May	June	July	August	Sept.	October	Nov.	Dec.	Total
Albacore:													
1-Lb. Flats	......	......	......	......	......	......	129	600	490	204	......	......	1,423
½-Lb. Flats	......	......	3,579	......	......	268	201,007	156,683	72,929	43,943	8,317	......	486,726
¼-Lb. and Misc. Sizes	......	......	......	......	......	......	7,004	5,384	......	6,369	3,705	......	22,462
Total	......	......	3,579	......	......	268	208,140	162,667	73,419	50,516	12,022	125	510,736
Bonito:													
1-Lb. Flats	......	265	......	......	......	......	......	......	......	......	......	......	265
½-Lb. Flats	597	......	197	......	12	20	......	......	402	87	166	......	1,481
¼-Lb. and Misc. Sizes	......	......	......	......	......	......	......	......	......	......	......	......	......
Total	597	265	197	......	12	20	......	......	402	87	166	300	2,046
Bluefin:													
1-Lb. Flats	......	......	......	......	......	......	......	......	......	......	......	......	......
½-Lb. Flats	......	......	......	......	......	......	150	594	782	1,333	......	......	2,859
¼-Lb. and Misc. Sizes	......	......	......	......	......	......	6	......	......	......	......	......	6
Total	......	......	......	......	......	......	156	594	782	1,333	......	......	2,865
Skipjack:													
1-Lb. Flats	......	......	......	......	......	......	1,094	......	......	100	......	......	1,194
½-Lb. Flats	17,795	27,628	43,188	57,590	49,743	62,903	33,665	111,404	206,785	140,541	78,394	......	829,636
¼-Lb. and Misc. Sizes	......	......	......	1,757	7,331	2,192	736	4,313	4,412	17,085	11,030	......	48,856
Total	17,795	27,628	43,188	59,347	57,074	65,095	35,495	115,717	211,197	157,726	89,424	58,406	938,092
Yellowfin:													
1-Lb. Flats	944	539	1,060	1,877	3,301	2,308	1,438	1,222	1,052	1,694	3,748	......	19,183
½-Lb. Flats	141,932	76,163	145,750	226,007	219,827	238,643	128,333	165,784	167,439	119,042	168,006	......	1,796,926
¼-Lb. and Misc. Sizes	......	......	......	1,445	19,782	36,081	10,415	11,095*	5,432	10,802	10,074	......	105,126
Total	142,876	76,702	146,810	229,329	242,910	277,032	140,186	178,101	173,923	131,538	181,828	182,342	2,103,577
Yellowtail:													
1-Lb. Flats	......	......	......	......	304	354	1	......	......	......	......	......	659
½-Lb. Flats	2,190	1,440	2,236	761	2,443	6,592	579	244	1,232	2,024	275	......	20,016
¼-Lb. and Misc. Sizes	......	......	......	......	......	......	......	......	......	......	......	......	......
Total	2,190	1,440	2,236	761	2,747	6,946	580	244	1,232	2,024	275	1,950	22,625
Tuna Flakes:													
1-Lb. Flats	438	......	531	......	2,115	333	2,014	256	327	739	3,316	......	10,069
½-Lb. Flats	10,792	1,728	17,551	35,103	33,252	16,186	47,761	39,813	54,269	48,796	25,791	......	331,042
¼-Lb. and Misc. Sizes	......	......	......	......	......	2,091	1,764	980	1,285	5,370	2,636	......	14,126
Total	11,230	1,728	18,082	35,103	35,367	18,610	51,539	41,049	55,881	54,905	31,743	......	355,237
Tonno:													
½-Lb. Flats	......	......	......	......	......	......	......	224	1,094	......	......	......	1,318
¼-Lb. and Misc. Sizes	......	......	......	265	2,064	......	504	......	......	......	......	......	2,833
Total	......	......	......	265	2,064	......	504	224	1,094	......	......	......	4,151
Grand Total	174,688	107,763	214,092	324,805	340,174	367,971	436,600	498,596	517,930	398,129	315,458	243,123	3,939,329

*Includes 1,319 cases 4-lb. 12s.
NOTE—Segregation of December production by can sizes not available. December totals are preliminary and subject to correction.

The AFL union at San Diego took no action.

Finally a firm offer was made of $300-290-270. (For the first time in history Skipjack took a $10 decline from its traditional position of $20 under Yellowfin.) Van Camp accepted this offer. However, unions would not agree and finally on June 28 the controversy was settled on this basis: Yellowfin, $310; Bluefin, $300; Skipjack, $290; bonito and yellowtail, $180. Skipjack thus regained its former price position. This scale was guaranteed until the end of 1949, when negotiations were again to be reopened.

The basis of sailing, considering that 60 or so clippers had been in San Diego harbor two months or more during the price squabble, was 36 days' idleness.

May's combined tonnage was in excess of 15,000 tons. San Diego flumed 8,839 tons, packed 340,176 cases. LA-LB got 6,582 tons, processed 197,353 cases. The Bluefin season was petering out.

1949 Tuna Seining Handicapped

While the purse seine fleet was about the same as in 1949, the number of trips completed was much smaller than the year before; in fact, less than 200 trips requiring Mexican licenses were accomplished. Cold, rough water almost throughout the year hampered netting operations.

Best fishing of the year in Mexi-

1949—California Skipjack Operations—1949

San Pedro			San Diego		TOTAL CALIFORNIA	
Pounds Received	Cases Canned	Months	Pounds Received	Cases Canned	Pounds Received	Cases Canned
392,451	4,672	January	1,091,985	17,795	1,484,436	22,467
211,637	3,584	February	1,466,842	27,628	1,678,479	31,212
1,265,061	23,351	March	2,513,056	43,188	3,778,117	66,539
1,543,391	15,401	April	3,262,626	59,347	4,806,017	74,148
1,486,960[1]	13,045[2]	May	3,461,848	57,074	4,948,808	70,119
3,122,729[3]	27,430[4]	June	3,825,048	65,095	6,947,777	92,525
1,427,221	7,012	July	2,671,256	35,495	4,098,477	42,507
3,785,052	16,370	August	7,469,605	115,717	11,254,657	132,087
5,341,601	42,752	September	12,496,586	211,197	17,838,187	253,949
654,438	5,138	October	9,394,540	157,726	10,048,978	162,864
2,634,756	12,777	November	5,157,721	89,424	7,792,477	102,201
2,360,000	40,844	December	3,278,000	58,406	5,638,000	99,250
24,225,297	212,376	TOTALS	56,089,113	938,092	80,314,410	1,150,468

[1] Includes 55,384 lbs. landed in No. Calif. [2] Includes 1,348 cases canned in No. Calif. [3] Includes 193,265 lbs. landed in Northern California. [4] Includes 4,701 cases canned in No. Calif.

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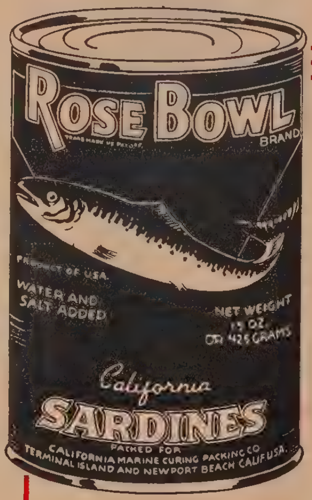
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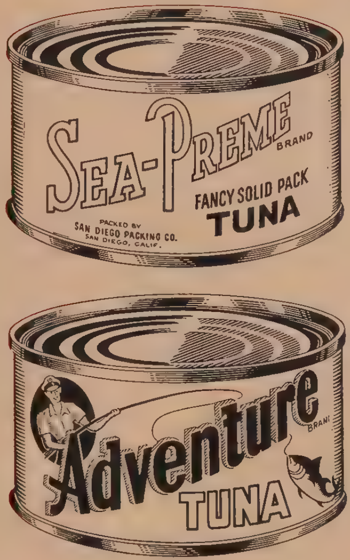
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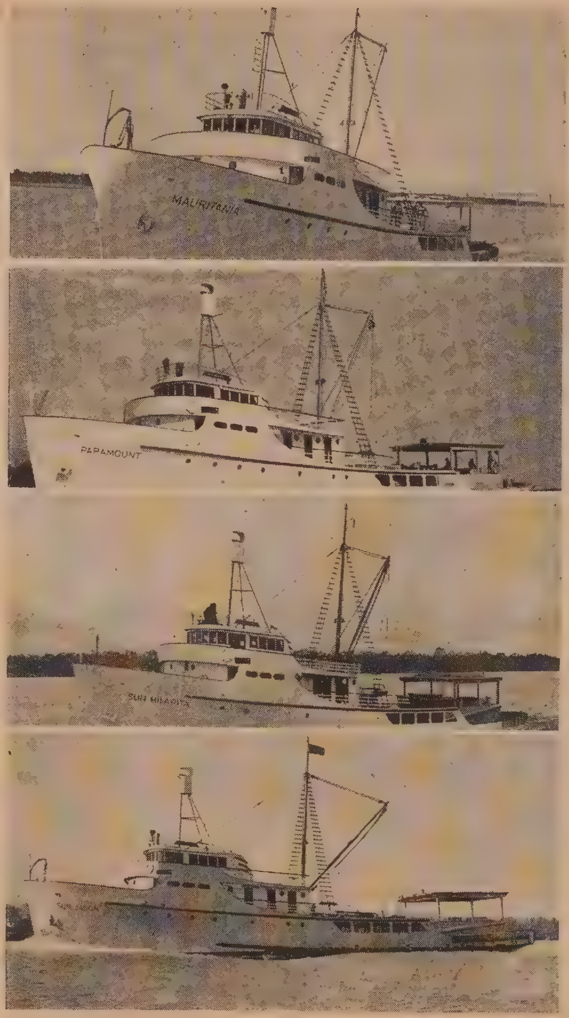

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1949—SAN PEDRO TUNA PACK BY MONTHS—1949

Species	Jan.	Feb.	March	April	May	June	July	August	Sept.	October	Nov.	Dec.	Total
Albacore:													
1-Lb. Flats	......	......	......	......	......	......	368	1,882	418	50	......	......	2,718
½-Lb. Flats	......	2,496	......	......	8	2	80,356	56,278	101,698	20,413	1,053	......	262,304
¼-Lb. and Misc. Sizes	......	......	......	......	......	8	10,213	4,787	4,905	5,245	154	......	25,312
Total	......	**2,496**	......	......	**8**	**10**	**90,937**	**62,947**	**107,021**	**25,708**	**1,207**	**375**	**290,709**
Bonito:													
1-Lb. Flats	......	......	......	......	......	......	......	1,104	338	......	......	......	1,442
½-Lb. Flats	49	28	......	......	662	2,209	2,317	3,721	1,276	180	......	......	10,442
¼-Lb. and Misc. Sizes	......	......	......	......	......	......	6,810	......	......	......	......	......	6,810
Total	**49**	**28**	......	......	**662**	**2,209**	**9,127**	**4,825**	**1,614**	**180**	......	**42**	**18,736**
Bluefin:													
1-Lb. Flats	......	680	......	......	......	......	247	......	......	......	......	......	927
½-Lb. Flats	......	10,211	......	......	101	1,151	7,560	16,117	2,914	......	......	......	38,054
¼-Lb. and Misc. Sizes	......	......	......	......	......	......	123	165	......	......	......	......	288
Total	......	**10,891**	......	......	**101**	**1,151**	**7,930**	**16,282**	**2,914**	......	......	......	**39,269**
Skipjack:													
1-Lb. Flats	......	......	......	......	......	101	47	......	136	......	135	......	419
½-Lb. Flats	4,672	3,369	23,351	15,401	11,259	17,643	6,965	14,752	37,130	4,281	11,475	......	150,298
¼-Lb. and Misc. Flats	......	215	......	......	438	4,985	......	1,618	5,486	857	1,167	......	14,766
Total	**4,672**	**3,584**	**23,351**	**15,401**	**11,697**	**22,729**	**7,012**	**16,370**	**42,752**	**5,138**	**12,777**	**40,844**	**206,327**
Yellowfin:													
1-Lb. Flats	173	......	579	2,251	1,318	1,688	51	778	928	540	670	......	8,976
½-Lb. Flats	41,475	10,371	87,570	87,753	92,036	78,106	36,456	41,620	28,081	13,879	29,813	......	547,160
¼-Lb. Flats	......	686	......	723	4,336	17,414	1,041	880	762	127	965	......	26,934
Total	**41,648**	**11,057**	**88,149**	**90,727**	**97,690**	**97,208**	**37,548**	**43,278**	**29,771**	**14,546**	**31,448**	**178,314**	**761,384**
Yellowtail:													
1-Lb. Flats	......	......	......	......	......	162	208	3,169	3,000	......	63	......	6,602
½-Lb. Flats	23	586	729	139	1,576	5,677	1,467	14,359	8,412	46	1,521	......	34,535
¼-Lb. and Misc. Sizes	......	......	......	......	......	......	......	......	......	......	......	......	......
Total	**23**	**586**	**729**	**139**	**1,576**	**5,839**	**1,675**	**17,528**	**11,412**	**46**	**1,584**	**200**	**41,337**
Tuna Flakes:													
1-Lb. Flats	196	444	1,301	141	961	1,919	1,418	256	1,495	435	1,137	......	9,703
½-Lb. Flats	23,905	9,597	34,468	104,687	137,839	160,365	154,788	68,046	145,703	35,874	113,829	......	989,101
¼-Lb. and Misc. Sizes	......	......	......	......	2,312	11,127	14,778	980	1,849	922	1,210	......	33,178
Total	**24,101**	**10,041**	**35,769**	**104,828**	**141,112**	**173,411**	**170,984**	**69,282**	**149,047**	**37,231**	**116,176**	......	**1,031,982**
Tonno:													
½-Lb. Flats	......	485	665	100	1,599	4,845	4,742	5,486	13,281	296	1,552	......	33,051
¼-Lb. and Misc. Sizes	......	......	735	4,182	13,857	11,656	44	2,981	3,042	......	1,519	......	38,016
Total	......	**485**	**1,400**	**4,282**	**15,456**	**16,501**	**4,786**	**8,467**	**16,323**	**296**	**3,071**	......	**71,067**
Grand Total	**70,493**	**39,168**	**149,398**	**215,377**	**268,302**	**319,058**	**329,999**	**238,979**	**360,854**	**83,145**	**166,263**	**219,775**	**2,460,811**

NOTE—Segregation of December production by can sizes not available. December totals are preliminary and subject to correction.

can waters was in March, centering at Tres Marias Islands, Mexican mainland. From 50 to 60 seiners operated there at one time, and some 40 returned to Los Angeles harbor with full loads.

Ten of the major seiners operated off Cost Rica and the Galapagos Islands and several of them participated in the great run of Yellowfin in November at the latter banks. Increasing friendly relations were noted during the year between seiners and the bait fleet, one helping the other with exchange of fuel and emergency supplies.

June tonnage was: San Diego, 9,049 tons, 367,971 cases packed; LA-LB, 8,052 tons, 317,139 cases. Only 47 tons Bluefin was delivered. For the first six months of 1949 the combined fleets had delivered 11,362 tons more than for the corresponding period in 1948. The pack was nearly half a million cases increase. Albacore made its appearance in late June.

Albacore Fish Price Down Sharply

White Meat tuna commanded the spotlight in July and before the month was over San Diego had flumed 5,516 tons; LA-LB, 2,433 tons. Canneries decided to again send barges and buying tenders to offshore locations, both off Mexico and Southern California. Going price for Albacore to fishermen at unloading cannery docks was $400 per ton. Sold offshore, fishermen got $300. The price held until fall when, with the major tonnage in, the price dropped to $350.

The overall tonnage for July showed San Diego receiving 10,834 tons, packing 436,600 cases; LA-LB unloaded 7,034 tons and processed

1949—California Yellowtail Operations—1949

San Pedro Pounds Received	San Pedro Cases Canned	Months	San Diego Pounds Received	San Diego Cases Canned	TOTAL CALIFORNIA Pounds Received	TOTAL CALIFORNIA Cases Canned
8,147	23	January	126,600	2,190	134,747	2,213
43,052	586	February	93,740	1,440	136,792	2,026
36,791	729	March	131,969	2,236	168,760	2,965
20,627	139	April	63,158	761	83,785	900
156,112	1,576	May	135,416	2,747	291,528	4,323
1,760,808	5,839	June	406,843	6,946	2,167,651	12,785
455,700	1,675	July	92,579	580	548,279	2,255
2,624,867	17,528	August	15,238	244	2,640,105	17,772
1,247,961	18,968	September	247,224	2,455	1,495,185	21,423
30,195	504	October	114,812	4,249	145,007	4,753
181,084	1,584	November	56,679	275	237,763	1,859
16,000	200	December	130,000	1,950	146,000	2,150
6,581,344	**49,351**	**TOTALS**	**1,614,258**	**26,073**	**8,195,602**	**75,424**

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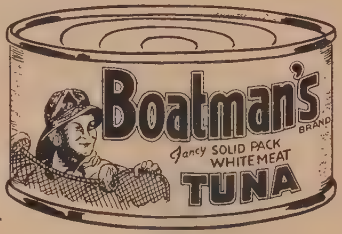
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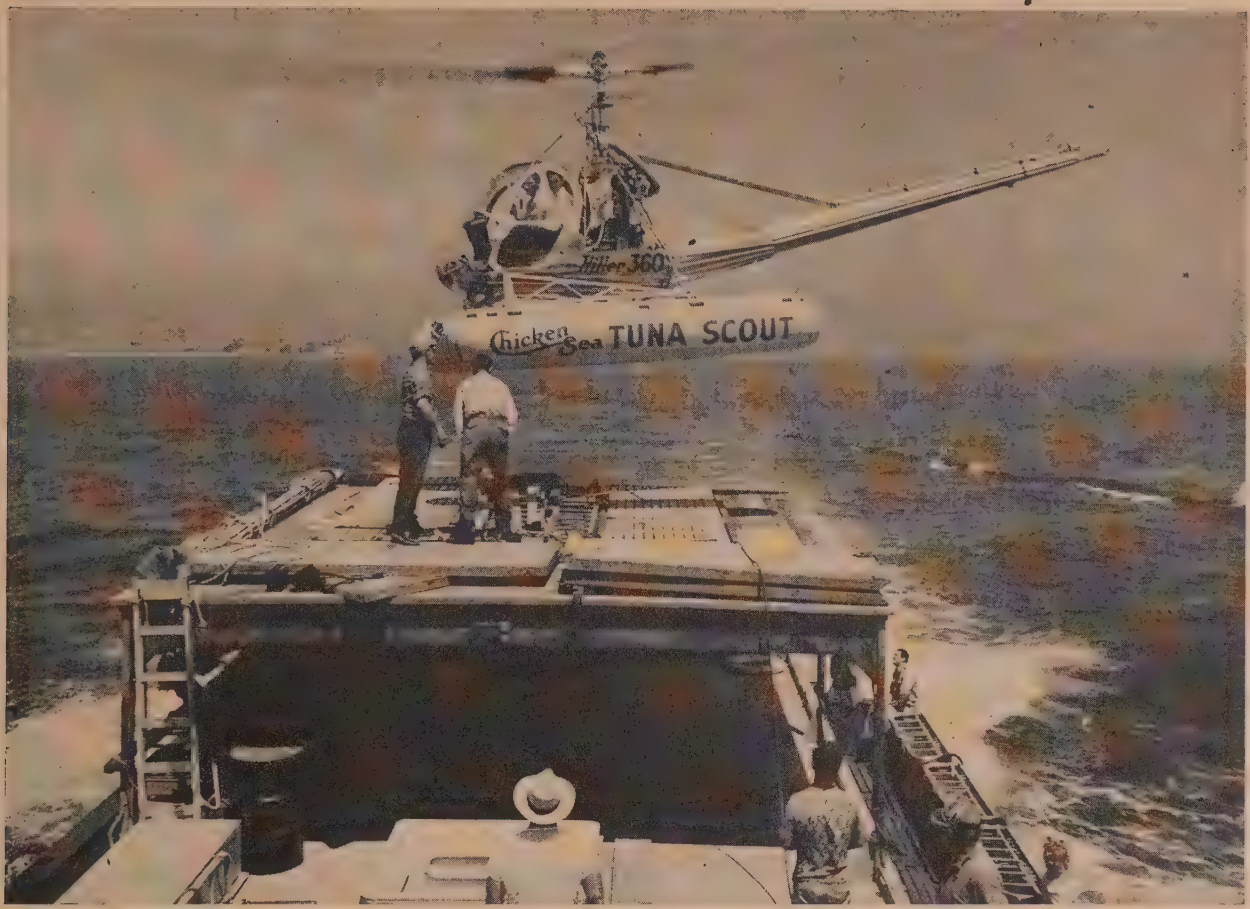

Something New Has Been Added to the Fisherman's Kit of Tools

Here the helicopter comes to tuna fishing. This picture, taken by Pacific Fisherman off the coast of Southern California, shows the Van Camp helicopter *Chicken of the Sea Tuna Scout* hovering above the bait tank platform of the steel tuna clipper *Espirito Santo*. On her first trip with the helicopter, *Espirito Santo* took a fine fare of tuna in a very short time, which Capt. Joe Machado attributed largely to the effectiveness of the 'copter in spotting both bait fish and the tuna to use them on. The macin is a *Hiller 360*, manufactured by United Helicopters, Inc., Palo Alto, Calif.

400,253 cases. Bluefin swung upward slightly, 352 tons, from Mexican waters. California Sea Food Company, Long Beach announced the closing of its cannery, due to unsettled conditions. Its fleet of tuna vessels were distributed among other canneries. On July 27, Governor Warren signed a bill to continue as legal unloading of tuna scaling over 150 lbs. for two additional years.

Vessels Again Held in Port For Varying Periods

Tuna deliveries continued to increase in August, and conditions looked ominous for uninterrupted fleet activity for the balance of the year. By September 1 canners were talking of holding in their vessels.

San Diego unloaded 12,851 tons in August, packing another 500,000 cases. In the tonnage were 4,048 tons, Albacore. The northern district received 7,978 tons; packed 333,301 cases.

Of importance during August was the ratification August 17, by the U. S. Senate, of two tuna research treaties with Mexico and Costa Rica; and the commissioning of a helicopter by Van Camp on the steel clipper *Espirito Santo* as an adjunct to bait and fish scouting, which contributed to one of the largest tuna fares in history, over 500 tons.

By mid-September the fleets of San Diego and Los Angeles received

1949—California Bonito Operations—1949

San Pedro			San Diego		TOTAL CALIFORNIA	
Pounds Received	Cases Canned	Months	Pounds Received	Cases Canned	Pounds Received	Cases Canned
....	49	January	29,487	597	29,487	646
1,986	28	February	12,232	265	14,218	293
....	....	March	10,171	197	10,171	197
....	....	April	....	....	....	....
31,078	662	May	546	12	31,624	674
256,429	2,209	June	1,152	20	257,581	2,229
756,353	9,127	July	....	....	756,353	9,127
425,619	4,825	August	....	....	425,619	4,825
168,649	2,332	September	18,710	402	187,359	2,734
9,069	189	October	5,153	87	14,222	276
14,014	....	November	9,813	166	23,827	166
3,000	42	December	20,000	300	23,000	342
1,666,197	19,463	TOTALS	107,264	2,046	1,773,461	21,509

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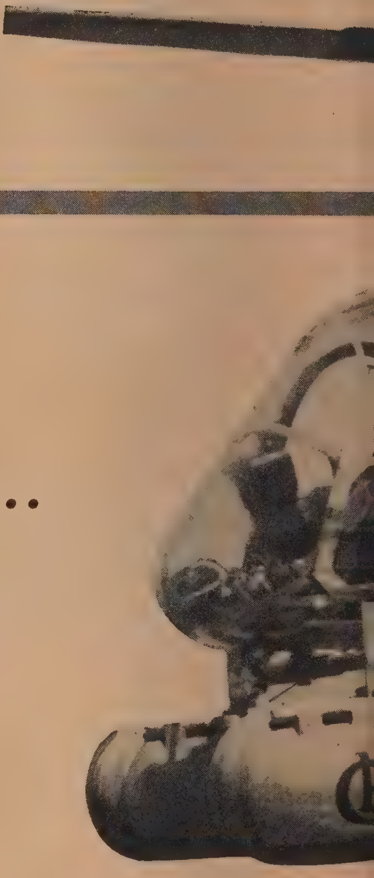
FOR THE INDUSTRY



SAVES (SHIPS) FUEL....
SAVES MAN HOURS...
SAVES TIME AT SEA...

Joe Machado, skipper of the tuna clipper, Espirito Santo, says of the Hiller 360: "The Hiller 360 played an important role in the big catch we brought in last week. It has certainly proved its worth to the fishing industry in saving fuel, time at sea and man hours.

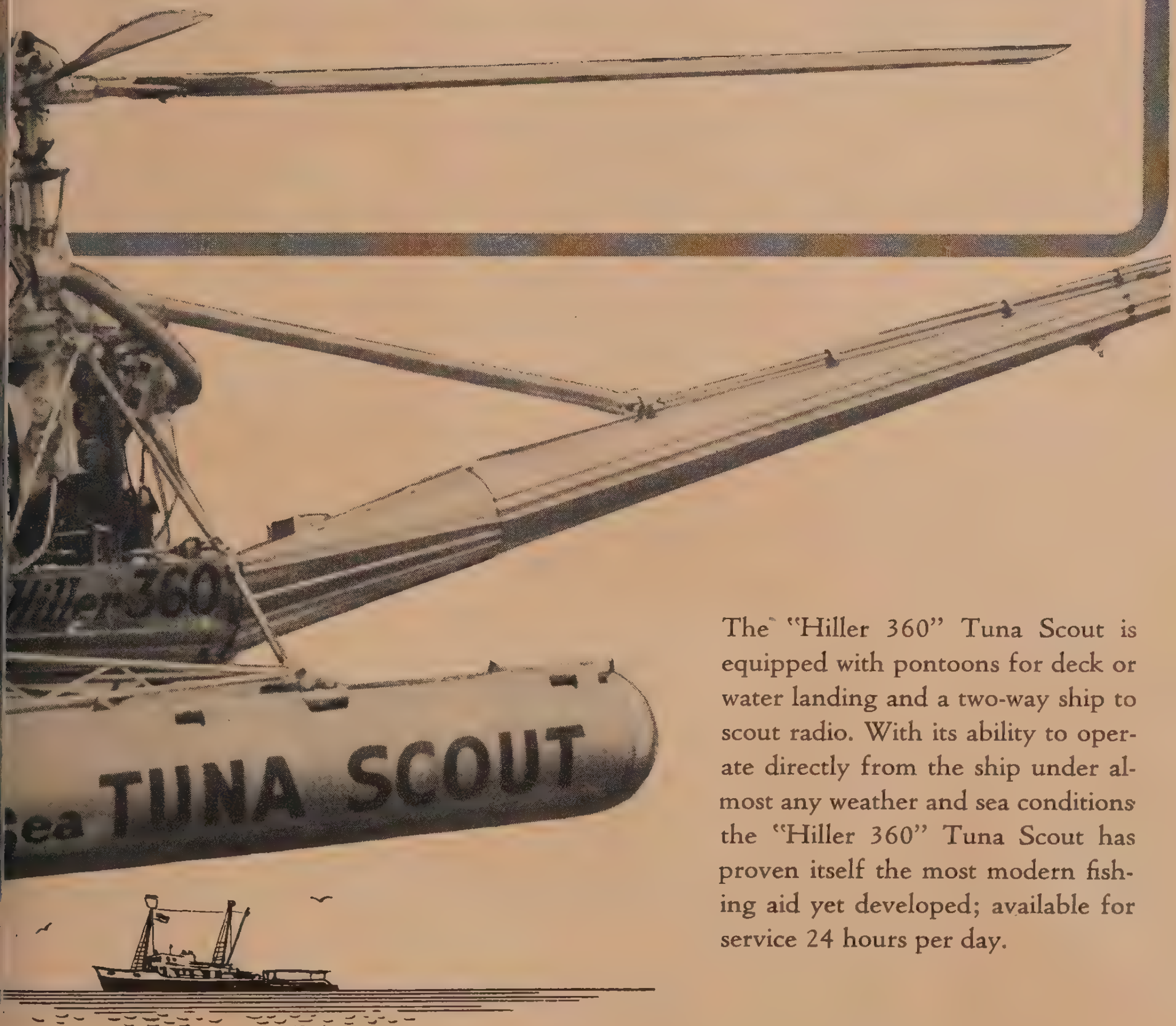
"The 88-day cruise to the Galapagos Islands was shortened by at least a month because of the 'copter's work. The clipper was able to work four or five schools of fish a day, because of the operation of the helicopter."

(Right) Machado praises the "Hiller 360" Helicopter to its pilot, H. R. Watson.

"Hiller 360" Tuna Scout shown aboard its base on the bait tank canopy on the stern of the Tuna Clipper Espirito Santo.

ESPIRITO SANTO

HELICOPTER



The "Hiller 360" Tuna Scout is equipped with pontoons for deck or water landing and a two-way ship to scout radio. With its ability to operate directly from the ship under almost any weather and sea conditions the "Hiller 360" Tuna Scout has proven itself the most modern fishing aid yet developed; available for service 24 hours per day.

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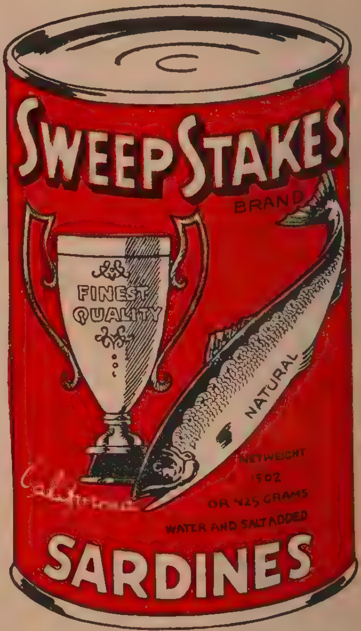
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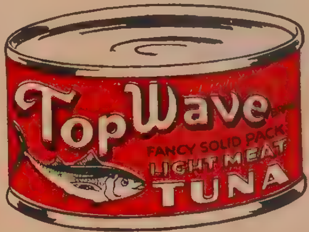
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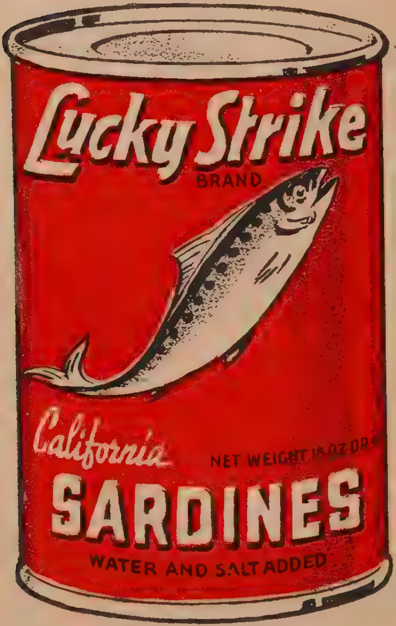
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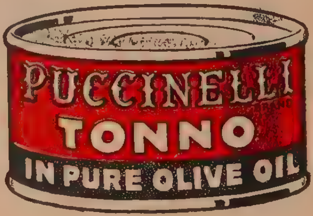
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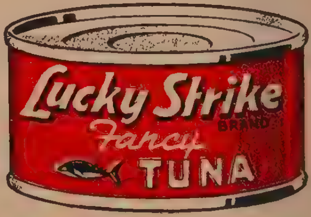
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Landings of Tuna in California Since 1926

CAUGHT IN UNITED STATES WATERS

YEAR	ALBACORE	BLUEFIN	BONITO	SKIPJACK	YELLOWFIN	Total Pounds
1926	2,469,861	6,526,533	2,942,906	14,217,018	2,695,502	**28,851,820**
1927	4,455,372	4,898,386	1,121,476	5,802,598	595,247	**16,873,079**
1928	283,321	13,700,870	1,335,533	4,396,132	84,626	**19,800,482**
1929	269,056	7,476,370	593,886	8,032,077	199,444	**16,570,833**
1930	283,117	15,598,892	3,866,496	3,015,275	35,553	**22,799,333**
1931	37,322	2,556,775	3,014,135	11,965,616	154,024	**17,527,872**
1932	619,694	460,044	1,676,487	375,042	165,323	**3,296,590**
1933	487	324,216	1,967,244	10	6,867	**2,298,824**
1934	171,105	18,291,721	3,003,048	....	19,514	**21,485,388**
1935	2,386,249	18,495,813	2,263,740	1,907,916	529,007	**25,582,725**
1936	956,771	13,808,578	2,216,679	8,456,751	767,231	**26,206,010**
1937	3,196.770	10,822,071	5,707,212	1,884.148	187,732	**21,797,933**
1938	12,492.675	16,512,262	4,684,570	2,816	10,566	**33,702.889**
1939	12,342,671	9,318,978	6,697,249	2,718,641	457,405	**31,534,944**
1940	5,587,790	18,849,968	3,553,069	2,985,111	237,527	**31,213,465**
1941	3,276,257	8,848,147	7,200,496	4,214,373	1,739	**23,541,012**
1942	7,997,293	10,331,506	861.841	217,838	1,315	**19,409,793**
1943	11,885,815	7,663,887	801,535	17,904	2,058	**20,375,199**
1944	8,091,207	16,072,045	326,175	43,676	45,373	**24,578,476**
1945	9,505,544	14,139,076	339,664	93,078	5,159	**24,582,521**
1946	9,101,600	15,529,229	582,948	1,747,060	32,653	**26,993,490**
1947	7,387,173	14,755,622	384,315	893,046	3,234	**23,423,390**
1948	10,499,390	1,693,760	214,992	319,194	593	**12,727,929**

CAUGHT IN WATERS SOUTH OF THE INTERNATIONAL BOUNDARY

YEAR	ALBACORE	BLUEFIN	BONITO	SKIPJACK	YELLOWFIN	Total Pounds
1926	60	....	178,698	6,734,330	9,869,484	**16,782,572**
1927	123,995	....	596,532	28,003,362	25,338,798	**54,062,687**
1928	....	....	770,370	11,551,972	32,168,580	**44,490,922**
1929	45	50,487	2,324,658	18,974,936	37.245,480	**58,595,606**
1930	....	6,322,390	1,297,764	17,470,312	56,618.628	**81,709,094**
1931	....	1,177,255	65,538	4,541,145	36,425,456	**42,209,394**
1932	....	611,162	1,185,799	21,261,535	36,758,087	**59,816,583**
1933	....	236,276	284.955	16,687,298	51,068,763	**68.277,292**
1934	....	66,107	199,646	14,830,194	60,893,646	**75.989,593**
1935	61,279	6,677,270	5,632,744	15.289,270	71,765,126	**99,425,689**
1936	....	5,116,305	4,999,237	18,549,354	77.585,413	**106,250,309**
1937	....	1,871,851	2,100.858	45,219,944	91,334,726	**140,527,379**
1938	29.919	1,215,769	3,155,423	22,650,815	78,277,578	**105.329,504**
1939	4,187	2,516,737	3,221,626	27,402,250	109,960,396	**143,105,196**
1940	880	1,120,300	1,737,895	53,665,044	113.660,682	**170,184,801**
1941	....	670,865	3,057,106	21,371,095	76,700,021	**101,799,087**
1942	2,623,900	2,513,058	788,848	38,497,344	41,166,126	**85.589,276**
1943	9,499,049	2,514,283	1,480,349	28.875,880	49,259,270	**91,628,831**
1944	9,774,659	4,259,966	492,696	29,920,701	62,190,656	**106,674,678**
1945	12,262,037	6,454,983	2,374,517	33,180,329	86,125,497	**140,397,363**
1946	8,962,447	6,502,519	5,042,700	39,130,247	126,393,035	**186,033,948**
1947	5,758,607	6,082.012	13,312,856	51,422,403	149,063,560	**225,639,438**
1948	25,926,456	4,835,047	8,920,134	58,433,122	191,635,058	**289,749,817**
1949	43,797,516	3,465,521	1,773,461	80,314,410	180,779,669	**310,129,577**

GRAND TOTAL POUNDS

1926	**45,634,392**	1933	**70,576,116**	1941	**125,340,099**
1927	**70,935,766**	1934	**97,474,981**	1942	**104,999,069**
1928	**64,291,404**	1935	**125,008,414**	1943	**112,004,030**
1929	**75,166,439**	1936	**132,456,319**	1944	**131,253,154**
1930	**104,508,427**	1937	**162,325,312**	1945	**164,479,884**
1931	**59,737,266**	1938	**139,032,393**	1946	**213,027,438**
1932	**63,113,173**	1939	**174,640,140**	1947	**249,062,828**
		1940	**201,398.266**	1948	**302,477,746**

NOTE.—Segregation of 1949 landings as to origin not available.

All fish caught in U. S. waters were caught in California waters, except the following, which were caught off the Oregon-Washington coast: Albacore, 11,176 lbs. in 1936; 1,176,754 lbs. in 1937; 7,702,795 lbs. in 1938; 4,078,562 lbs. in 1939; 3,255,858 lbs. in 1940 854,103 lbs. in 1941; 448,446 lbs. in 1942. In addition to items included in this table, California canneries in 1941 received 444,340 lbs. of Albacore and 121,596 lbs. of Skipjack from Japan

orders to tie up as the individual vessels came into port and unloaded. The order was not 100 per cent, as some of the smaller canneries continued to send out their clippers and some seiners sailed. However, the lay-up was complete in San Diego.

Albacore Deliveries Heavy

September's tonnage was another 20,000 tons. San Diego got 12,674 tons, packed 517,930 cases. LA-LB flumed 8,401 tons, packed 360,854 cases. Biggest tonnage was a surprising 9,000 tons of Skipjack. This was due to a heavy run of Striped tuna at the Galapagos Islands which extended to Costa Rican waters. Albacore too was heavy, 4,800 tons.

In September Harold F. Cary, general manager, American Tunaboat Association, returned from an extensive Central and South American goodwill tour which took him to most of the capitals of countries with whom the American tuna fleet has license and other arrangements. Also in the fall, the ATA celebrated 28 years as a business organization by inaugurating new headquarters on Fishermen's Wharf.

Similarly, the Fishermen's Cooperative Association had the use of new docking and service facilities at 73, and the fishermen's fraternity celebrated with a Fishermen's Fiesta, September 9-10-11.

Fall Fishing Is Very Heavy

With the fleets becoming idle as the individual vessels reached port, the gross tonnage was expected to decline. It did not at San Diego which received 9,968 tons, packed 398,129 cases. LA-LB tonnage sharply dropped: 1,717 tons, 83,145 cases. Again Skipjack was in the majority, 4,697 tons.

Tonnage was heavy again at San

1949—California Albacore Operations—1949

Month	Northern California		San Pedro		San Diego		Total California		Month
	Pounds Received	Cases Canned	Pounds Received	Cases Canned	Pounds Received	Cases Canned	**Pounds Received**	**Cases Canned**	
January	....	....	80,311	....	....	....	**80,311**	....	January
February	....	....	33,702	2,496	2,998	....	**36,700**	**2,496**	February
March	....	....	....	....	131,621	3,579	**131,621**	**3,579**	March
April	....	....	....	....	....	....	....	....	April
May	....	....	....	8	....	....	....	**8**	May
June	....	....	2,100	10	76,217	268	**78,317**	**278**	June
July	....	....	4,866,417	90,937	11,033,277	208,140	**15,899,694**	**299,077**	July
August	394,367	8,530	3,636,321	62,947	8,096,831	162,667	**12,127,519**	**234,144**	August
September	580,831	10,507	6,369,022	107,021	3,233,354	73,419	**10,183,207**	**190,947**	September
October	579,303	11,478	1,239,547	25,708	2,557,401	50,516	**4,376,251**	**87,702**	October
November	135,220	5,085	123,958	1,207	469,718	12,022	**728,896**	**18,314**	November
December	....	....	150,000	375	5,000	125	**155,000**	**500**	December
Totals	**1,689,721**	**35,600**	**16,501,378**	**290,709**	**25,606,417**	**510,736**	**43,797,516**	**837,045**	**Totals**

California Albacore Landings by Ports—1947 to 1949

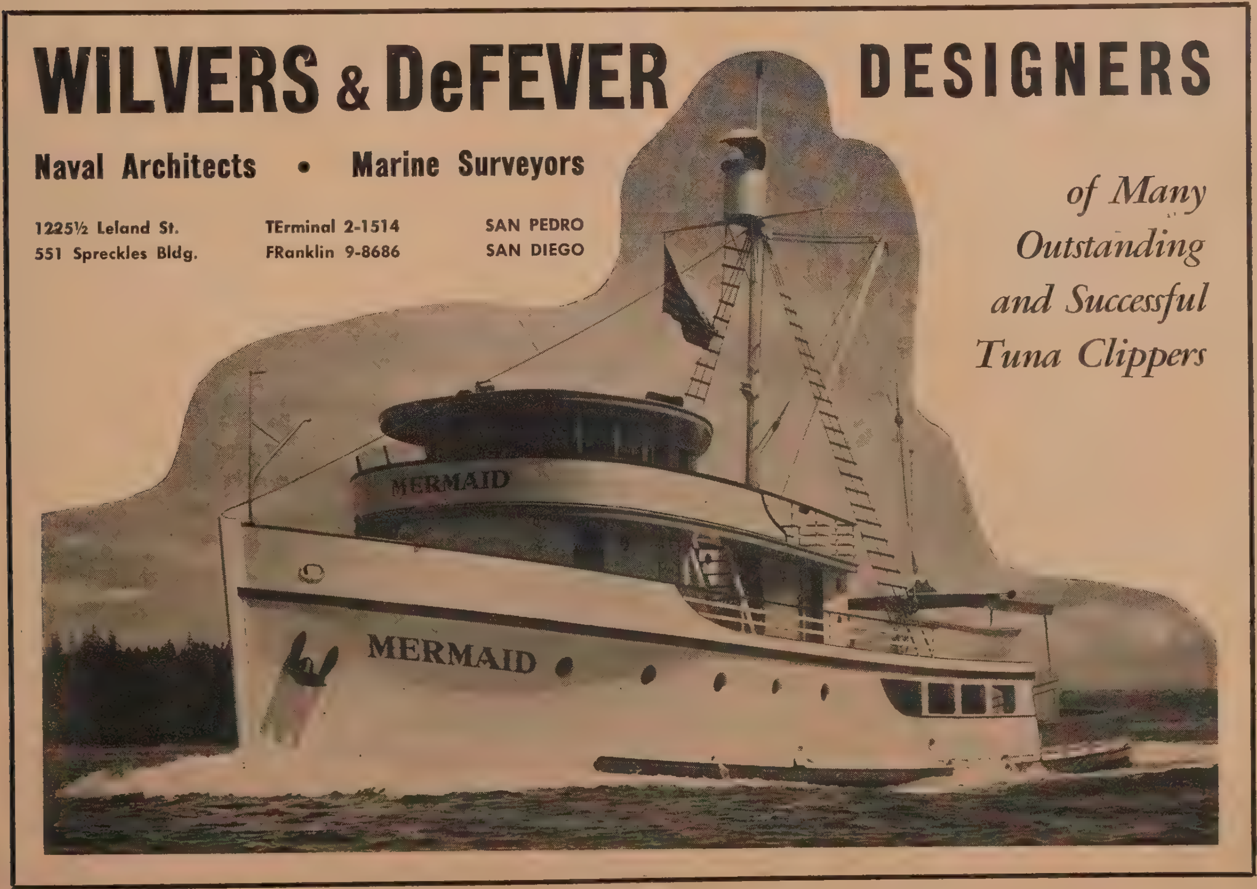
Month and Year	Eureka Region, Pounds	San Francisco Region, Pounds	Monterey Region, Pounds	Santa Barbara Region, Pounds	Los Angeles Region, Pounds	San Diego Region, Pounds	California Total Pounds	Month and Year
1949								**1949**
January					80,311		80,311	January
February					33,702	2,998	36,700	February
March						131,621	131,621	March
June					2,100	76,217	78,317	June
July					4,866,417	11,033,277	15,899,694	July
August		394,367			3,636,321	8,096,831	12,127,519	August
September		580,831			6,369,022	3,233,354	10,183,207	September
October		579,303			1,239,547	2,557,401	4,376,251	October
November		135,220			123,958	469,718	728,896	November
Total		*1,689,721			†16,351,378	25,601,417	43,642,516	**Total**
1948								**1948**
June					20	65	85	June
July	1,558	6,218	83,277	4,926	1,295,565	4,560,831	5,952,375	July
August	60,595	32,269	588,632	135,486	5,283,050	14,124,048	20,224,080	August
September	628,455	387,868	450,577	206,679	1,732,173	5,552,075	8,957,827	September
Total	690,608	426,355	1,122,486	347,091	8,310,808	24,237,019	35,134,367	**Total**
1947								**1947**
April		27			2,373		2,400	April
June					74,641	341,208	415,849	June
July	121			1,370	577,230	2,498,405	3,077,126	July
August	164,255	1,247	4,943	11,156	2,101,548	4,224,985	6,508,134	August
September	214,621	30,922	200,870	232,712	262,022	343,763	1,284,910	September
October	152,120	327,716	968,846	455,772	43,220	68,399	2,016,073	October
November		12,883	97,481	6,244	4,779	1,402	122,789	November
Total	531,117	372,795	1,272,140	707,254	3,065,813	7,478,162	13,427,281	**Total**

*Figures for 1949 include Albacore landed in Eureka and Monterey.
†Figures include landings in Santa Barbara also.

Diego in November. The combined deliveries were better than 10,000 tons, of which San Diego got nearly 7,000 tons. Albacore was still being unloaded for a total of 291 tons. Yellowfin got back on top again with 7,500 tons. Unofficially the pack reached nearly 500,000 cases.

550-Ton Fare Sets Record

An all-time record fare, around 550 tons, was delivered by the converted clipper *Scarlet Queen* to



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This section of San Diego's south waterfront shows threeof that tuna city's famous clipper yards, and one of its fine tuna canneries. On the extreme left is the Martinolich Shipbuilding Corporation; then the National Steel & Shipbuilding Co. plant, with the main structures roughly parallel to the water; while along the mole at the right is the Lynch Shipbuilding Co. The buildings in the right center at an acute angle with the waterfront are those of the People's Packing Corporation, and constitute one of the most modern of all tuna canneries.

French Sardine Company. *Santa Helena,* formerly the world's largest steel seiner, but converted late in the year to a hook-and liner completed her initial trip as such, delivering 335 tons to Van Camp.

Although the combined fleets had delivered approximately 11,000 tons more to November 30 than in 1948 to that date, canners could see that the gross tonnage of raw tuna for the year would be at a standoff with 1948. There was no possibility of the 1948's December delivery of 18,000 being duplicated, with only a few clippers and a couple of seiners still at sea when December began.

Stay-in-Port Continues

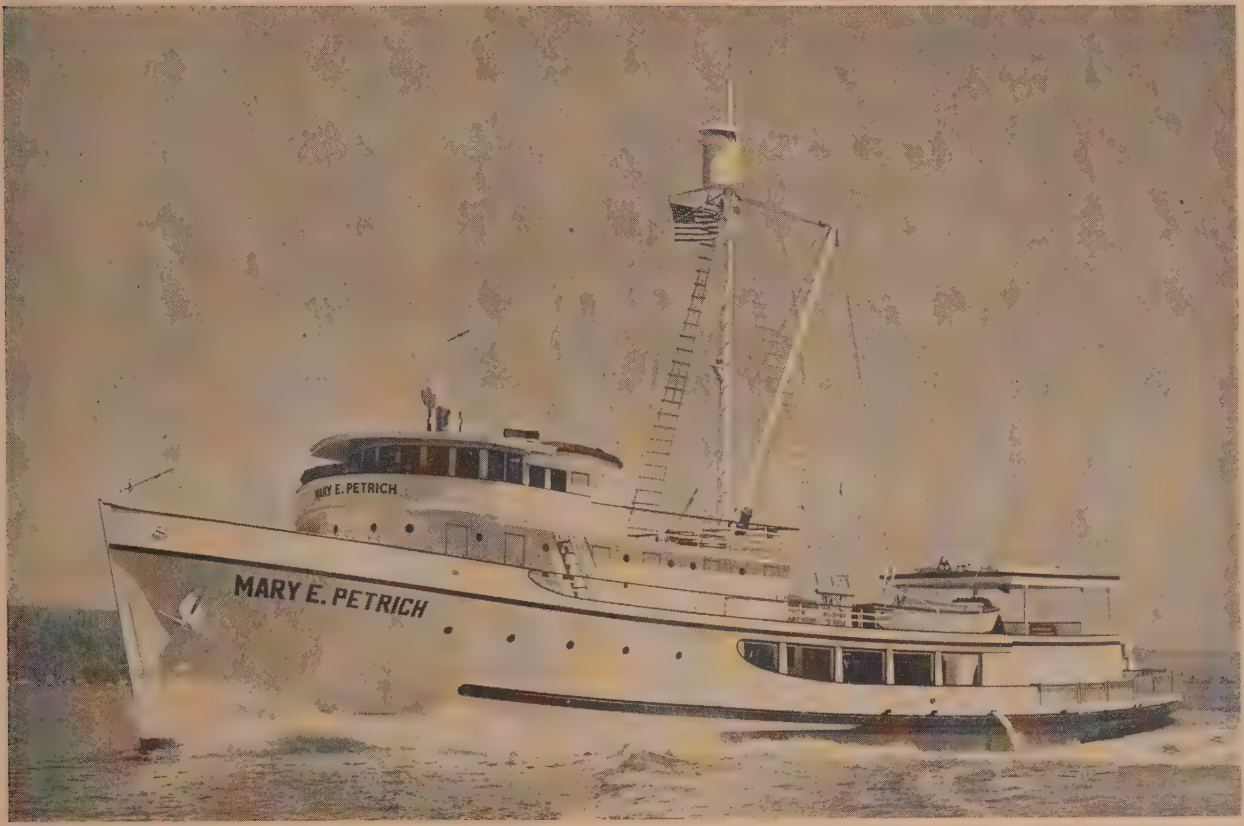
The major packers began worrying over their potential for early spring. With no clippers then scheduled to sail until after the new year, they decided to release vessels, and on November 22 departures began, but on a time-staggered plan.

Van Camp instituted a 60-day in-port schedule. Sun Harbor announced varying sailing schedules as follows: Vessels 50 to 100 tons, 60 days, 100 to 160, 75 days; 160 up, 90 days. Westgate required 75 days in port. High Seas put 60 days in force; others were sending their clippers and seiners to sea depending on tonnage requirements.

Thus, many vessels were at sea when the holidays began and canners were assured of fish in Janu-

1949—California Bluefin Operations—1949

Month	San Pedro		San Diego		Monterey and Northern California		Total California		**Month**
	Pounds Received	Cases Canned	Pounds Received	Cases Canned	Pounds Received	Cases Canned	**Pounds Received**	**Cases Canned**	
January	109,985	....	....	....	....	....	109,985	....	January
February	746,658	10,891	....	....	222,705	1,337	969,363	12,228	February
March	....	....	....	....	....	3,592	....	3,592	March
April	....	....	....	....	....	....	....	....	April
May	7,350	101	....	....	....	....	7,350	101	May
June	93,849	1,151	....	....	....	....	93,849	1,151	June
July	704,843	7,930	6,359	156	....	....	711,202	8,086	July
August	1,130,957	16,282	21,037	594	....	....	1,151,994	16,876	August
September	352,956	2,914	7,579	782	....	....	360,535	3,696	September
October	2,500	....	58,743	1,333	....	....	61,243	1,333	October
November	....	....	....	....	....	....	....	....	November
December	....	....	....	....	....	....	....	....	December
Totals	**3,149,098**	**39,269**	**93,718**	**2,865**	**222,705**	**4,929**	**3,465,521**	**47,063**	**Totals**



***Mary E. Petrich* was outstanding among the tuna clippers commissioned in 1949. Her length of 150′ makes her the largest vessel yet built originally as a clipper. Designed by James Petrich, she was built and is owned by Martin Petrich and his sons. Power is an opposed-piston Fairbanks-Morse diesel, operated at 720 rpm. to deliver 1,600 hp. Prime auxiliaries are twin 210-hp. Fairbanks diesels, aided by a stand-by 100-hp. G.M. diesel, giving an aggregate of 2,120 hp. Notable in many respects, the *Mary E. Petrich* is unique in that she carries no bait pumps as such. Fourteen over-sized brine circulating pumps are installed to serve also as bait pumps.**

ary and February. The Los Angeles harbor industry adopted need of raw tonnage as the basis for sending vessels out. Some smaller plants had vessels operating without tie-up periods.

Offer of 1949 Prices Through 1950 Announced

Just before the end of 1949, Van Camp Sea Food Co. announced to its fishing vessels an offer to pay $310 for Yellowfin and $290 for Skipjack throughout 1950.

It gave assurance, furthermore, that the practice of making payment for fish at the rate prevailing when the trip was started would be continued.

Any announcement of intention to change the price schedule after 1950 would be made well in advance of the end of that year.

Westgate-Sun Harbor Merge

On December 5 one of the most important merger announcements in tuna history in Southern California was made when Westgate and Sun Harbor consolidated under a new company, Westgate - Sun Harbor Company, with W. Wade Ambrose as president and Jack Crivello as executive vice president, each having equal administrative authority.

1949—IMPORTS OF CANNED TUNA—1949

Countries	Nov. '48 Pounds	Dec. '48 Pounds	Jan. '49 Pounds	February Pounds	March Pounds	April Pounds	May Pounds	June Pounds	July Pounds	August Pounds	September Pounds	October Pounds	Total Pounds
Angola		3,450	3,900	866	60,217	31,980	38,425	139,736	14,500	31,529	14,191	13,951	352,745
Azores	2,250	31,650	6,800	182,272	1,554	792		52,997		4,657	4,023	1,323	288,318
Canada	36	70								2			108
China	18			104,244									104,262
Japan	138,394	172,966	9,200	311,894	191,486	1,071	48,053	41,735	122,448	324,511	259,461	195,727	1,816,946
Peru	88,500	38,488	495,608	187,597	55,092	163,239	5,257	341,579	295,919	120,918	14,055	3,670	1,809,922
Portugal	110,673	51,480	26,005	3,432	83,959	27,702	19,924	57,983	21,621	17,382	10,729	7,667	438,557
Italy		419			60			225					704
Portuguese Guinan		34,874	3,528				2,250						40,652
Other		1,984											1,984
France			607		2,000				970		1,131		4,708
French Morocco			2,348		827	827	790	21,600					26,392
Korea					6,300								6,300
United Kingdom					1,960								1,960
Spain									1,016	216			1,232
Chile										84			84
Total Pounds	**339,871**	**335,381**	**547,996**	**790,305**	**403,455**	**225,611**	**114,699**	**655,855**	**456,474**	**499,299**	**303,590**	**222,338**	**4,894,874**

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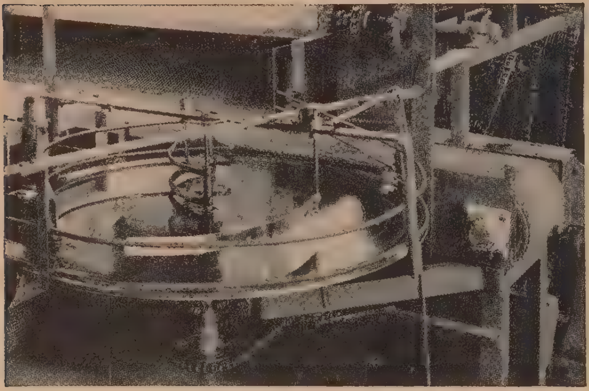

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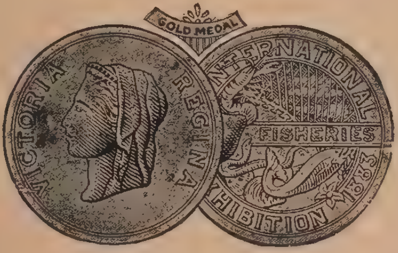

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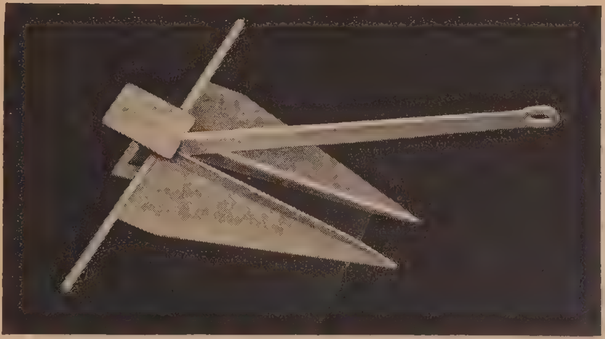

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Fish with PLYMOUTH Rope

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Waterproof and Protective Clothing--Oiled and Neoprene

Eighty-five per cent of Pacific Coast fishermen demand Johnson's "Best" Oilskins. Made from heavier fabrics, large and roomy sizes, heavier coatings of oil, they wear longer, fit better, and keep you dry!

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President, California Fish Canners Association

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TUNA
NORTHWEST

Despite early appearance of shortage, the Pacific Northwest's pack of Albacore tuna in 1949 exceeded that of the previous year by a few thousand cases, and actually proved to be the third largest in the history of the tuna operations in Oregon and Washington.

Tuna production in this region was substantially augmented by light meat tuna brought from sub-tropical regions for canning.

With an Albacore tuna pack aggregating 434,126 cases, Oregon and Washington in 1949 actually recorded the third largest output in the history of the tuna fishery in those waters.

Early expectations were that the pack would be short of the previous year, but it was evident in the long run that the late run in California waters had carried the aggregate for the season above early estimates.

The proportion of the pack put up in Oregon and in Washington remained approximately the same as in 1948.

Tuna canning in British Columbia evidently was held to much smaller limits than the previous year and a large part of the Canadian tuna landings were shipped to Grays Harbor for canning on cooperative account.

Frozen Albacore From Japan

In addition to the local production of Albacore from Pacific Northwest waters — augmented by some fish from northern California — there was imported from Japan late in September, 1949, the largest shipment of frozen Albacore ever to reach North America from the Orient.

This shipment consisted of some 1,200 tons of large frozen Albacore, comprising a full cargo for the Columbia River Packers Association's freezership *Tinian*. It was discharged at Astoria for canning in the company's big tuna cannery during the off-season for local tuna fishing.

Machine Filling Introduced

The 1949 Pacific Northwest Albacore pack marked the introduction for the first time on any considerable scale of machine filling of solid-pack tuna. A number of plants used a "Pak-Shaper" machine to fill solid-pack, this machine being the invention of E. H. Carruthers of Warrenton, Ore.

1949—PACIFIC NORTHWEST ALBACORE PACK—1949

—Company—	Cannery Location	Fancy and Standard: ½-Lb. Flat 48s	Fancy and Standard: Other Sizes	Shredded, Grated and Flakes: White Meat ½-Lb.	Shredded, Grated and Flakes: Other Sizes	Shredded, Grated and Flakes: Blended White and Dark, ½-Lb. 48s	Total Standard Cases. 4 Dz. ½-Lb. Cans
Barbey Packing Corporation	Astoria, Ore.	7,390		1,075		1,370	**9,835**
Chinook Packing Co.	Chinook, Wash.	204		54		67	**325**
Columbia River Packers Association	Astoria, Ore.	118,666	(a)5,963	9,593		27,584	**161,806**
Columbia River Salmon Co.	Astoria, Ore.	10,440		1,684		2,867	**14,991**
Crown Packers, Inc.	Hoquiam, Wash.	19,619		869		9,385	**29,873**
Fishermen's Federation, Inc.	Hoquiam, Wash.	6,214		239		3,226	**9,679**
Nelson Crab & Oyster Co.	Tokeland, Wash	2,500		250		250	**3,000**
New England Fish Co.	Newport, Ore.	5,247		1,587			**6,834**
Paragon Packing Co.	Astoria, Ore.	7,361	(b) 229	162	(b) 444	4,301	**12,497**
Point Adams Packing Co.	Hammond, Ore.	35,218		4,218	(c)1,012	6,307	**46,755**
Sebastian-Stuart Fish Co.	Astoria, Ore.	13,800		2,563		4,708	**21,071**
South Bend Oyster Co.	South Bend, Wash.	4,500		579		2,766	**7,845**
Union Fishermen's Co-op. Packing Co.	Astoria, Ore.	8,880		876		2,574	**12,330**
Van Camp Sea Food Co.	Astoria, Ore.	36,792	(a)2,935				(d)**39,727**
West Coast Fish Co.	Aberdeen, Wash.	18,383		2,886		4,266	**25,535**
Whiz Fish Products Co.	Hoquiam. Wash.	10,225		854		3,284	**14,363**
Yaquina Bay Fish Co.	Newport, Ore.	12,345		1,122		2,986	**16,453**
Totals		**317,784**	**9,127**	**28,611**	**1,456**	**75,941**	**432,919**

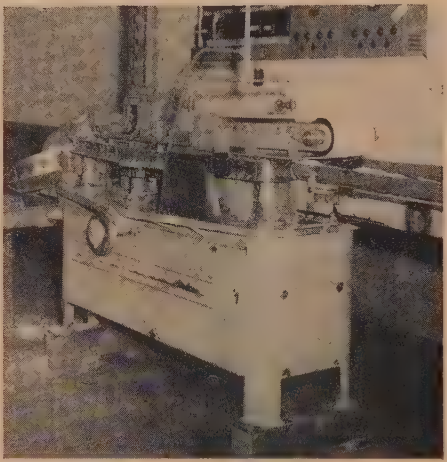
(a) Quarter-pound cans, 96 per case. (b) Four-pound cans, 12 per case. (c) One-pound flats. (d) Segregation as to fancy, standard and chunk pack not available.

E. H. CARRUTHERS COMPANY

ENGINEERS • DESIGNERS
TO THE FOOD PACKING INDUSTRY

Tuna Packing Mechanized By Our Pak-Shaper

Pak - Shaper's introduction in 1949 developed in tuna canning a greater measure of mechanization than had come about in 30 years of previous growth. . . Directly we will have answers for other problems of the packing industry.



THE PAK-SHAPER

These Tuna Operators Employ the Pak-Shaper

Columbia River Packers Association

French Sardine Co.

High Seas Tuna Packing Co.

Point Adams Packing Co.

Union Fishermen's Cooperative Packing Co.

Van Camp Sea Foods Co.

Westgate - Sun Harbor Co.

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NORTH COAST ALBACORE BY GRADES—1939 to 1949

OREGON				Year	PACIFIC NORTHWEST Combined Totals, Standard Cases	Year	WASHINGTON			
Fancy and Standard Cases	Flakes		Total Standard Cases				Total Standard Cases	Flakes		Fancy and Standard Cases
	White	Blended						Blended	White	
265,266	24,336	52,697	**342,299**	1949	**432,919**	1949	**90,620**	23,244	5,731	61,645
231,138	48,583	50,404	**330,125**	1948	**417,354**	1948	**87,229**	15,450	9,372	62,409
231,075	50,163	45,464	(a) **326,702**	1947	(a) **385,570**	1947	**58,868**	5,876	11,179	41,813
101,478	23,477	19,674	**144,629**	1946	**192,237**	1946	**47,608**	7,251	5,708	34,649
274,720	69,454	55,674	(d) **399,848**	1945	**466,859**	1945	**67,011**	7,391	9,440	50,180
564,574	106,777	119,005	**790,356**	1944	(b) **846,596**	1944	**56,240**	....	16,240	40,000
250,982	39,554	....	**290,536**	1943	**301,414**	1943	**10,878**	....	1,775	9,103
....	....	....	**307,810**	1942	**314,353**	1942	**6,543**	....	....	....
....	....	....	**194,751**	1941	**197,629**	1941	**2,878**	....	....	....
....	....	....	**197,735**	1940	**207,723**	1940	**10,188**	....	....	....
....	....	....	**153,702**	1939	(c) **173,359**	1939	**15,857**	....	....	....

(a) Includes 3,231 cases fancy and 985 cases flakes canned at Eureka, Calif.
(b) Division of 1944 pack as to grades is approximate only.
(d) Includes a small quantity canned at Ilwaco, Wash.
(c) Includes 3,800 cases canned in British Columbia.

NOTE:—Grade segregations not available for years prior to 1943. Figures for the several calendar years cover quantities packed from fish caught during those years, even though in some cases canning of frozen stocks may not have been completed until the next calendar year.

Of course machine filling of flakes and grated tuna packs has long been a commonplace, but the "Pak-Shaper" is believed to represent the first extensive machine filling of fancy tuna.

Northwest Light Meat Tuna Pack Increases Extensively

The practice of canning light-meat tuna advanced sharply in 1949 in the Pacific Northwest, where the pack of this grade of tuna reached 190,323 cases, produced by three companies.

The tuna for this pack came largely from the American side of the Pacific, either through direct delivery by freezership which had taken the fish from fishing vessels on the tropical grounds, or by delivery from intercoastal vessels which had picked-up the frozen tuna at Central American ports en route north from the Panama Canal.

The 1949 pack compared with 143,978 cases in 1948 and 93,969 cases in 1947, the first year in which this business attained material importance.

1949 Northwest Albacore Run Late in Starting

Albacore were late in appearing off the North Pacific coast in 1949, and fishing really did not begin in any volume until August, several weeks after the usual beginning.

Remembering their success in locating tuna in 1948, the Canadian patrol vessels went on an Albacore-scouting cruise early in June, but it was not until after the middle of July that they found any fish whatever. To the middle of August landings at any Northwest port were of little more than "token" volume.

When fishing really got started it proved decidedly different from the pattern of previous years. Best fishing was found by jig gear, but the tuna were widely scattered, and never did school to an extent which gave the bait boats really flush fishing.

Moreover, the fishing seemed somewhat further to the south than usual. At no time did the fish appear in Northern British Columbia or Alaska waters, as they had in 1948, although there was one good spurt of fishing off Estevan, B. C., at the end of the first week in August.

Good fishing really did not run far into September, southerly weather early in that month putting a stopper on tuna operations in the northerly sector—although a heavy run of fish was encountered off the coast of Northern California later in the fall.

Heavy Tonnage and Small Fish Feature Late Run

Although fishermen have come to expect a late run of fish from Coos Bay south, experience in 1949 was unusual, not only in the volume of fish taken but also in the small average size.

A lot of the Albacore taken off northern California were below the 9-lb. minimum weight limit of that state and were run to the Columbia River or other Oregon ports for delivery.

As a rule, these small fish were bought at a price $50 under that paid for tuna of normal size.

Price Declines Sharply

The going price for Albacore in the Pacific Northwest ports in 1949 was $350 per ton, down a long way from the $600 and more paid the

1949—HAWAIIAN TUNA LANDINGS—1949

Month	Tuna*		Skipjack		Bonito		Total Tuna	Swordfish	
	Pounds	Price Per Cwt.	Pounds	Price Per Cwt.	Pounds	Price Per Cwt.	Pounds	Pounds	Price Per Cwt.
January February	282,780	....	169,747	....	10,243	....	462,770	196,994	....
March	124,633	$51.81	109,422	$30.74	8,903	$30.45	242,958	109,415	$40.04
April	125,259	48.43	215,977	30.36	6,302	30.34	347,538	108,725	41.11
May	142,824	35.25	928,626	14.94	4,725	22.23	1,076,175	108,278	28.16
June	168,777	31.76	2,162,251	11.93	3,307	26.99	2,334,335	90,009	25.80
July	151,555	32.20	1,504,119	12.38	4,690	26.60	1,660,364	79,758	37.19
August	126,384	35.34	2,187,272	12.07	5,455	26.09	2,319,111	103,621	37.80
September	110,534	41.94	963,083	13.01	5,898	22.49	1,079,515	66,597	46.15
Total	**1,232,746**		**8,240,497**		**49,523**		**9,522,766**	**863,397**	

*Includes Yellowfin, Albacore, Bluefin and another species—big eyed (ahipalaha).

year before. The reduced raw fish price reflected the sharp decline in selling price of the fish, which went down from about $22.50 to $16.50 per case.

Largest shipment of frozen Albacore ever to be received from the Orient was delivered to the Columbia River Packers Association late in September by its freezership *Tinian*, which brought 1,200 tons of large Albacore from Japan.

Alaska Exploratory Fishing Locates a Few Albacore

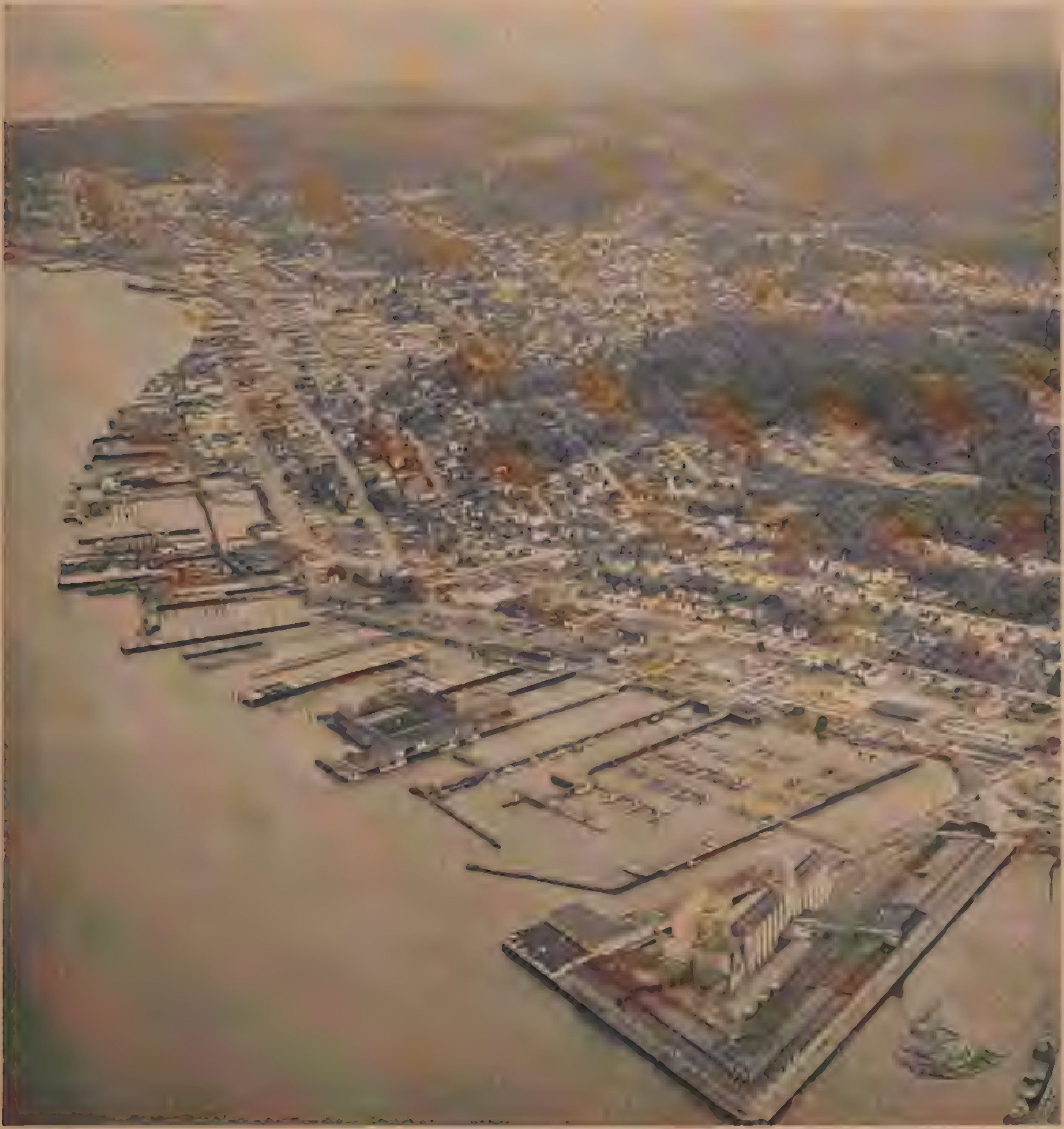
An exploratory fishing voyage by the Fish and Wildlife Service vessel *Oregon* located small concentrations of Albacore well off-shore from Alaska in the vicinity of known "sea mounts," but failed to find any fish close to the Alaska coast, where they had been taken the year before.

Canadian Albacore

British Columbia's pack of Albacore in 1949 was estimated at ap-

NORTH PACIFIC ALBACORE TUNA LANDINGS

OREGON				WASHINGTON					Combined Oregon and Washington Landings, Pounds
Columbia River, Pounds	South of Columbia, Pounds	Oregon Total, Pounds	1949	Puget Sound, Pounds	Grays Harbor, Pounds	Willapa Harbor, Pounds	Columbia River, Pounds	Washington State Total, Pounds	
526,928	104,676	**631,604**	July	28,961	1,528,960	231,196	106,921	**1,896,038**	**2,527,642**
1,625,236	519,676	**2,144,912**	August	702,982	2,432,962	321,920	262,428	**3,720,292**	**5,865,204**
1,301,185	923,260	**2,224,445**	September	9,281	658,988	38,920	7,921	**715,110**	**2,939,555**
1,073,558	224,787	**1,298,345**	October	71,600	21,642	3,926	4,921	**102,089**	**1,400,434**
			November	3,800				**3,800**	**3,800**
4,526,907	**1,772,399**	**6,299,306**	**1949 TOTALS**	**816,624**	**4,642,552**	**595,962**	**382,191**	**6,437,329**	**12,736,635**
			1948						
1,990,811	652,747	**2,643,558**	July	62,312	1,578,549	58,561	162,821	**1,862,243**	**4,505,801**
2,723,713	962,938	**3,686,651**	August	390,672	3,318,286	123,892	348,561	**4,181,411**	**7,868,062**
932,365	422,249	**1,354,614**	September	169,900	116,808	61,822		**348,530**	**1,703,144**
33,053	124,329	**157,382**	October	14,938	36,521	6,890		**58,349**	**215,731**
5,679,942	**2,162,263**	**7,842,205**	**1948 TOTALS**	**637,822**	**5,050,164**	**251,165**	**511,382**	**6,450,533**	**14,292,738**
			1947						
673,647	362,169	**1,035,816**	July	45,505	1,037,929	43,786	140,469	**1,267,689**	**2,303,505**
2,027,945	584,636	**2,612,581**	August	177,831	2,153,029	92,529	260,545	**2,683,934**	**5,296,515**
2,092,618	2,304,774	**4,397,392**	September	8,563	65,899	10,785		**85,247**	**4,482,639**
817,813	310,021	**1,127,834**	October	25,480	32,898			**58,378**	**1,186,212**
5,612,023	**3,561,600**	**9,173,623**	**1947 TOTALS**	**257,379**	**3,289,755**	**147,100**	**401,014**	**4,095,248**	**13,268,871**
			1946						
323,331	70,559	393,890	July	172	289,029	23,505	46,995	**359,701**	**753,591**
1,741,573	629,466	2,371,039	August	24,675	778,484	33,936	148,526	**985,621**	**3,356,660**
1,155,319	30,556	1,185,875	September	165,491	624,818		1,743	**792,052**	**1,977,927**
3,220,223	**730,581**	**3,950,804**	**1946 TOTALS**	**190,338**	**1,692,331**	**57,441**	**197,264**	**2,137,374**	**6,088,178**
			1945						
			June		42		6,730	**6,772**	**6,772**
1,147,222	306,909	**1,454,131**	July	119,847	1,850,105	21,572	196,118	**2,187,642**	**3,641,773**
6,290,075	1,612,425	**7,902,500**	August	92,797	3,009,811	75,900	335,131	**3,513,639**	**11,416,139**
2,327,060	262,702	**2,589,762**	September	28,130	140,779	28,609	9,608	**207,126**	**2,796,888**
231,978		**231,978**	October	104,491	45,882	517		**150,890**	**382,868**
			November	842	44			**886**	**886**
9,996,335	**2,182,036**	**12,178,371**	**1945 TOTALS**	**346,107**	**5,046,663**	**126,598**	**547,587**	**6,066,955**	**18,245,326**
			1944						
975,332	612,585	**1,587,917**	July	34,686	741,058	3,347	247,912	**1,027,003**	**2,614,920**
6,288,455	2,690,529	**8,978,984**	August	141,553	4,683,789	68,714	660,234	**5,554,290**	**14,533,274**
7,708,799	1,069,649	**8,778,448**	September	279,354	3,536,677	161,052	125,037	**4,102,120**	**12,880,568**
3,014,988	58,367	**3,073,355**	October	206,906	786,177		14,355	**1,007,438**	**4,080,793**
17,987,574	**4,431,130**	**22.418.704**	**1944 TOTALS**	**662,499**	**9,747,701**	**233,113**	**1,047,538**	**11,690,851**	**34,109.555**
			1943						
1,333,241	419,371	**1,752,612**	July		300,247		185,711	**485,958**	**2,238,570**
2,922,206	1,160,977	**4,083,183**	August	22,920	1,393,057		338,333	**1,754,310**	**5,837,493**
2,646,887	689,252	**3.336,139**	September	169,788	1,566,949		132,534	**1,869,271**	**5,205,410**
1,067,015	147,007	**1,214,022**	October	284,112	250,411		4,616	**539,139**	**1,753,161**
7,969,349	**2,416,607**	**10,385 956**	**1943 TOTALS**	**476,820**	**3,510,664**		**661,194**	**4,648,678**	**15,034,634**
			1942						
Division of avail	Landings not able.	**2,040,981**	July		177,522	900	175,975	**354,397**	**2,395,378**
		4,799,557	August	30,131	777,508	7,576	309,717	**1,124,932**	**5,924,489**
		3,701,392	September	11,162	282,703	74,406	55,346	**423,617**	**4,125,009**
		401,026	October	9,365	46,619	206	15,922	**72,112**	**473,138**
		10,942,956	**1942 TOTALS**	**50,658**	**1,284,352**	**83,088**	**556,960**	**1,975,058**	**12,918,014**
			1941						
514,084	264,806	**778,890**	July	643	20,459		74,468	**95,570**	**874,460**
4,700,037	952,512	**5,652,549**	August	15,428	359,407		381,037	**755,872**	**6,408,421**
756,615	307,356	**1,063,971**	September	34,218	90,562	149	38,618	**163,547**	**1,227,518**
44,315	122	**44,437**	October	28,711	6,664			**35,375**	**79,812**
5,284		**5,284**	November						**5,284**
6,020,335	**1,524,796**	**7,545,131**	**1941 TOTALS**	**79,000**	**477,092**	**149**	**494,123**	**1,050,364**	**8,595,495**



Aerial view of the western waterfront of Astoria, Ore., first American settlement on the Pacific Coast, and center of Pacific Northwest tuna canning. Along the upper side of the pier in the foreground is seen the salmon and tuna cannery of the Barbey Packing Corporation. Then comes the fishing boat mooring basin, and then the salmon and tuna cannery of the Union Fishermen's Cooperative Packing Co. Next is the salmon and tuna cannery of the Paragon Packing Co., with the great "Elmore" salmon and tuna cannery of the Columbia River Packers Association. Next is the original plant of the Columbia River Salmon Co., followed by the cold storage of the New England Fish Co., and the Sebastian-Stuart Fish Co. cannery and cold storage.

proximately the same as in 1948, when the official figure was 40,496 cases of 48 halves.

Total landings for 1949 were 2,200,000 lbs. of Albacore taken by British Columbia fishermen, compared with 2,174,000 lbs. in 1948.

Although the catch was actually bigger in 1949 than in the previous year, the season was shorter. The first Albacore were not taken by B. C. fishermen until mid-July and at no time in the season did Albacore frequent the waters off the Queen Charlottes as they did in 1948.

The season reached its most intense activity early in August, when about 200,000 pounds of Albacore

1949—Pacific Northwest Lightmeat Tuna Pack

Company	Cannery Location	Fancy-Standard ½ Flats	Fancy-Standard Other Sizes	Grated ½ Flats	Grated Other Sizes	Total Cases
Columbia River Packers Assn.	Astoria, Ore.	68,402	(a) 3,860	9,799	(a) 2,419	84,480
Van Camp Sea Food Co.	Astoria, Ore.	100,325	(a) 2,774	(b)	....	103,099
Whiz Fish Products Co.	Hoquiam, Wash.	1,971	....	773	....	2,744
	Totals	170,698	6,634	10,572	2,419	190,323
1948 Pacific Northwest Lightmeat Tuna Production			87,160		56,818	143,978
1947 Pacific Northwest Lightmeat Tuna Production			60,784		33,185	93,968

(a) Quarter-pound flats, 8 doz. per case.

(b) Segregation of fancy, standard and chunk pack not available.

This 42′ Canadian troller, powered with a Nordberg engine driving through reduction gear, is typical of the new 1949 vessels of this kind which did so well in their first season fishing Albacore with jigs. The vessel is owned by Jim and Colin Jacobson of Vancouver, B. C.

were landed in Victoria during a 24-hour period, with prices averaging about $350 a ton. Most of the fish had been taken between 40 and 130 miles offshore in waters ranging from southwest of Cape Flattery to Estevan Point.

A large proportion of the catch was iced and held in storage awaiting disposal, but most of the larger fishing companies did some canning. Leaders from the standpoint of volume were B. C. Packers, Ltd., and the Fishermen's Co-operative, but Canadian Fishing Co., Nelson Bros. Fisheries and Tulloch Fisheries also packed Albacore to a limited extent.

Canadian fisheries patrol ships made several voyages up and down the coast to give assistance to Albacore fishermen through daily observations, but they were probably a less important factor than in 1948, when the Albacore ranged farther north. Many Canadian fishermen reported sighting large numbers of Albacore, but complained that they would not take a lure.

B. C. Boat to California

Some B. C. boats operated as far south as California waters towards the close of the season.

Generally speaking, the showing of Albacore was so erratic that government experts and fishermen were unable to substantiate many of their theories concerning the fish's occurrence and migrations. There was certainly nothing to confirm the idea that the Albacore were likely to appear in increasing numbers in northern waters. Most practical fishermen concluded that to play it safe they would have to be prepared to range far afield for the Albacore, and several made preliminary plans for the installation of refrigeration facilities inasmuch as they would probably be at sea considerably longer than the period when ice packing is effective.

Perhaps the primary objective set for the U. S. Fish and Wildlife Service exploratory vessel *John N. Cobb*, newly built in 1950 by Western Boat Building Co., Tacoma, is study of the possibilities of Albacore migration along the Alaskan coast.

This fishery was examined to some degree by a preliminary exploratory cruise in 1949, when the known range of the species extended some distance to the north.

These studies are undertaken primarily as economic projects, although of course they have scientific interest and importance as well.

NORTH COAST ALBACORE PACKS BY PORTS, 1939 to 1949

Oregon Coast Cases	Columbia River Cases	Total Cases	Year	Pacific Northwest Regional Total Cases	Year	Total Cases	Willapa Harbor Cases	Grays Harbor Cases	Puget Sound Cases
23,287	319,337	342,624	1949	432,919	1949	90,295	10,845	79,450	....
44,822	286,847	331,669	1948	417,354	1948	85,685	8,225	76,627	833
(a) 47,123	281,062	(a) 328,185	1947	(a) 385,570	1947	57,385	8,434	48,508	443
23,243	121,386	144,629	1946	192,237	1946	47,608	....	47,608	....
55,747	348,958	404,705	1945	466,859	1945	62,154	....	62,154	....
40,000	(b) 750,356	790,356	1944	846,596	1944	56,240	....	56,240	....
8,000	282,536	290,536	1943	301,414	1943	10,878	....	10,878	....
....	307,810	307,810	1942	314,353	1942	6,543	....	6,543	....
....	194,833	194,833	1941	197,629	1941	2,796	....	1,176	1,620
....	197,535	197,535	1940	207,723	1940	10,188	....	4,908	5,280
2,118	151,584	153,702	1939	(c) 173,359	1939	15,857	....	3,100	12,757

(a) Includes 4,216 cases canned at Eureka, Calif. (b) Division of 1944 pack between Columbia River and Oregon Coast is only approximate. (c) Includes 3,800 cases canned in British Columbia.

NOTE:—Data for the several calendar years cover packs made from fish caught during those years, even though in some cases canning of frozen stocks may not have been completed until in the next calendar year.

1949—WASHINGTON ALBACORE LANDINGS—1949

Port	July Trips	July Pounds	August Trips	August Pounds	September Trips	September Pounds	October Trips	October Pounds	Season Trips	Season Pounds	Port
Grays Harbor	362	1,528,960	421	2,432,962	121	658,988	21	21,642	925	4,642,552	Grays Harbor
Willapa Harbor	121	231,196	216	321,920	16	38,920	2	3,926	355	595,962	Willapa Harbor
Columbia River	52	106,921	106	262,428	38	7,921	3	4,921	199	382,191	Columbia River
Puget Sound	56	28,961	142	702,982	3	9,281	*29	*75,400	230	816,624	Puget Sound
Total	591	1,896,038	885	3,720,292	178	715,110	55	105,889	1,709	6,437,329	

*Includes one November trip.

Pacific Fisherman's
CANNED FISH HAND-I-BOOK

THE SEA'S TWO LEADERS AS THEY REACH THE TABLE

The "color" of fishing helps in merchandising its foods from the sea.

So living colors show that canned salmon and tuna can be as zestful in appearance as they are in flavor.

There's color in fish, and "color" in fishing.

PACIFIC FISHERMAN'S

CANNED FISH HAND-I-BOOK

This booklet is designed to provide basic background information on canned fish for the use of the men who sell it, and the men who buy it—the broker, the jobber, the wholesaler, and the retailer.

Designed for the trade rather than for the consumer, it seeks to be a solid, factual, compact and authoritative collection of information of use to those in whose hands rests the task, and the privilege, of distributing fine canned fish.

In the Beginning

Seafoods were among the first products canned by the process of heat sterilization of food in hermetically sealed containers, invented by Nicolas Appert, a Frenchman in the years from 1804 to 1809.

Canning came to the United States in 1819 when Ezra Daggett and Thomas Kensett started canning oysters in New York City. A year later William Underwood was canning lobster in Boston.

Large scale canning operations were not undertaken in this country until 1844, when Kensett initiated oyster canning in Baltimore in a substantial way.

As have wars since, the War Between the States sharply advanced the use of canned foods, and brought into being the first truly noteworthy pack—again a product of the sea.

This was in 1864, when George and William Hume and A. S. Hapgood started canning salmon on the Sacramento River, California.

Two years later they opened the Columbia River fishery with a cannery at Eagle Cliff. Another year, and a plant was started at New Westminster, B.C., on the Fraser River.

It was 10 years later, in 1877, that the first cannery was built on Puget Sound; and the great salmon canning industry of Alaska had its beginnings at Klawock in 1878.

From that beginning the opening of the Alaska salmon fisheries spread swiftly along the territory's tortured coastline, and within a few years men were canning salmon from the Sacramento River to Bering Sea.

Early Days of Sardine Canning

Sardine canning had its beginning in Maine in 1877, the year that salmon canning started on Puget Sound; but it was not until 1896 that the first successful sardine cannery in California was established at San Pedro.

Growth of California's sardine business was very slow until the First World War in 1917 developed a sudden demand which lifted sardine canning to the status of an industry.

Crab canning was undertaken in Virginia as early as 1878, but did not develop successfully because of the wide variation in quality of the pack, principally due to the tendency of discoloration to develop in the can.

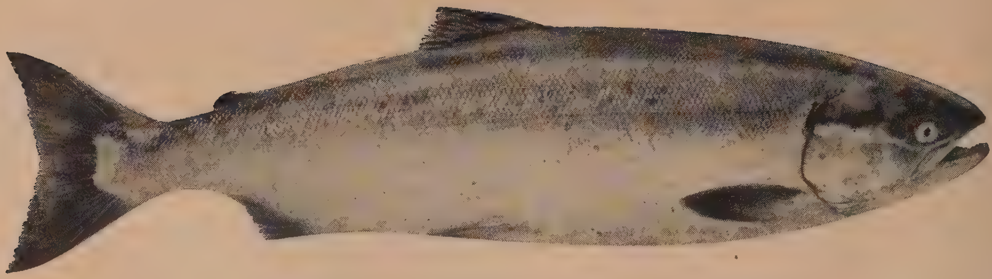
Finally, in 1936 a method which effectively overcomes the problem of discoloration was developed in this country, opening the way to the growth of a successful industry.

Tuna Canning New, but Swift

Tuna was the last of today's great seafood items to be canned, but the growth of the business has been continuous and astonishing.

The year 1909 is generally accepted as the beginning of the tuna canning industry, for it was then that Southern California Fish Co. marketed the first commercial pack of 2,000 cases through Seeman Bros. of New York City. Both firms are still leaders in the canned fish business.

By 1912 the pack was up to 75,000 cases, and four years later it reached the half-million-case mark. Tuna canning reached 1,000,000 cases for the first time in 1925, and from there has gone steadily forward to 7,000,000 cases.



RED Red, Sockeye or Blueback Salmon (*Oncorhynchus nerka*)—Average weight, 7 pounds. (The specimen photographed was 24½ inches in length.)

The 5 Pacific Salmon

There are five distinct species of Pacific salmon, which range from Monterey, Calif., to the Yukon River in Alaska, and in Asian waters of corresponding latitudes. All distinguished by the fact that they are spawned in fresh-water streams; migrate to the sea at an early age and spend most of their lives there. They return at maturity to spawn in their parent streams, and invariably die soon after spawning.

The Salmon "Run"

The movement of salmon toward the spawning ground is known as the "run", and occurs about the same time of year for each local group of salmon.

Salmon reach the apex of their physical maturity and perfection at the time of the run. Then each fish has accumulated in its flesh all the elements needed to carry it on its up-stream migration, often up hundreds of miles of swift, turbulent water—and produce the next generation. At this time it ceases feeding. Only during this short period of peak condition does it come within the reach of commercial fishing gear. Taking of fish in spawning condition is prevented by closed seasons and closed areas.

Spawning and Hatching

As they attain the spawning grounds, the salmon pair-off and dig shallow depressions in the fine gravel of the stream beds. There the eggs are deposited and fertilized, being covered with gravel for protection against natural enemies.

Both parent salmon die within a few days after spawning has been completed. This death after spawning is invariable among Pacific salmon, and is one of the principal differences between the Pacific type and the Atlantic salmon, which do not necessarily die after spawning.

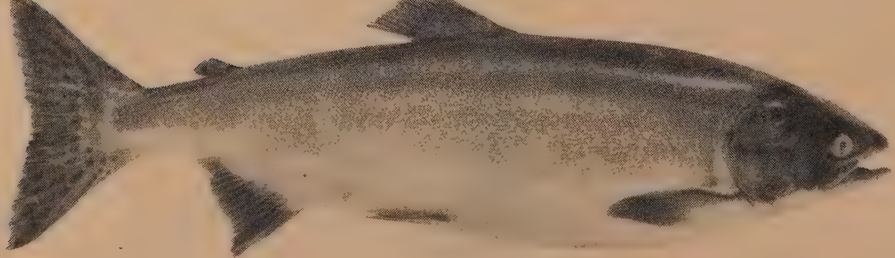
Spawning is accomplished in the fall and the eggs develop in the gravel during the winter. Hatching occurs early in the spring.

In some species the young fish pass almost immediately to sea to begin the saltwater phase of their cycle. In others, they may remain in fresh water for two years before seeking the sea.

The Ocean Existence

Next to nothing is known of the salmon after they migrate to the ocean. Where they go man knows not.

Pink Salmon (*Oncorhynchus gorbuscha*)—Average weight, 4½ pounds. (The specimen photographed was 22 inches long.) **PINK**



Salmon in almost all stages of development are taken by trollers fishing within a few miles of shore, but how far they may range north and south, or how far offshore is not known.

As they attain full maturity, the salmon come back to the streams; the Pink salmon in two years, the other species at greater age—to as much as eight years. Most common age-of-return is four years.

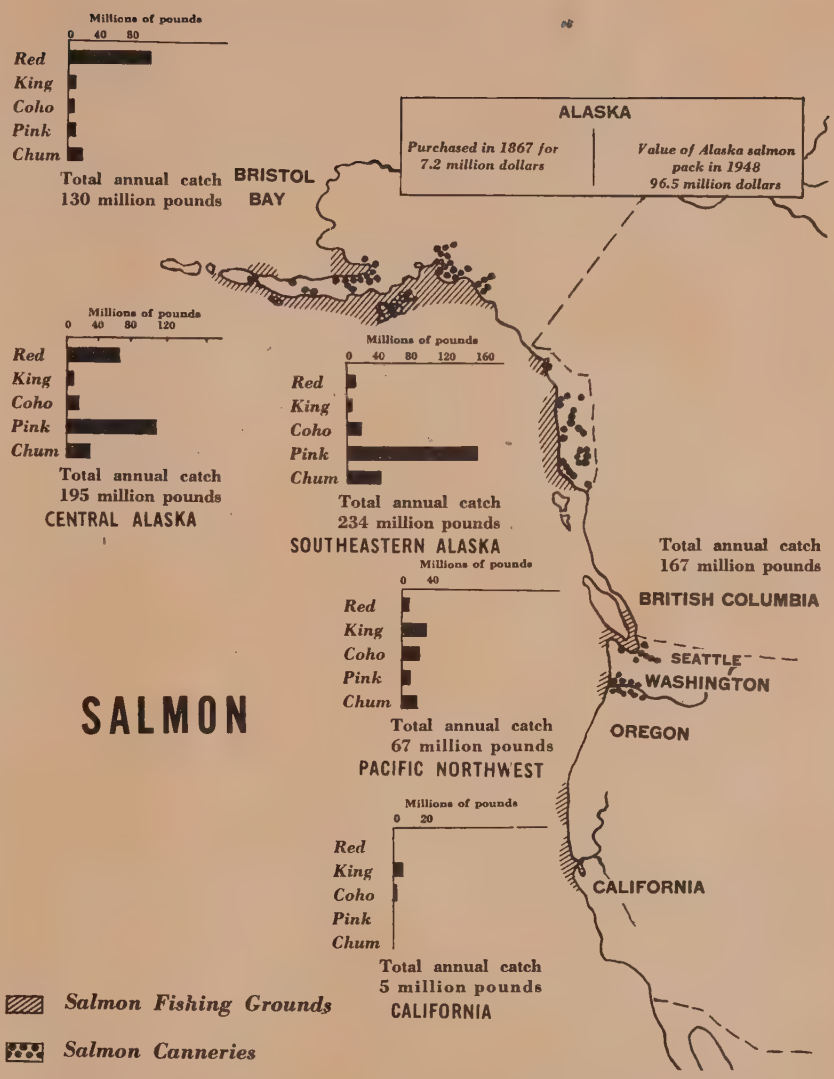
Red or Sockeye

The Red or Sockeye salmon ranks first in total value of canned output, but is second to the Pink in volume. Practically the entire catch is canned. In size this fish is next to the smallest, though it varies widely within a range from 4 to 12 pounds, with an average of 6½ pounds.

Its geographic range is from the Columbia River to Bristol Bay, which is the principal source, although the Fraser River in Canada, contributing most of the Puget Sound Sockeyes, occasionally produced greater packs up to 1913.

Principal Red salmon streams of Bristol Bay are the Kvichak, Naknek, and Nushagak. Other important sources: Chignik; the Kodiak-Afognak region (mainly Karluk and Red Rivers); Cook Inlet and Copper River. The Skeena, Naas and most other British Columbia rivers also have substantial runs, with minor but valuable runs to a few Southeast Alaska streams; the Skagit on Puget Sound, and the Quinault on the Washington coast. On the Quinault and Columbia River this species is known as the Blueback.

The normal life-cycle is four or five years. Five-year Reds usually predominate in the Bristol Bay runs, and in some British Columbia streams; four-year fish on the Fraser and Columbia.

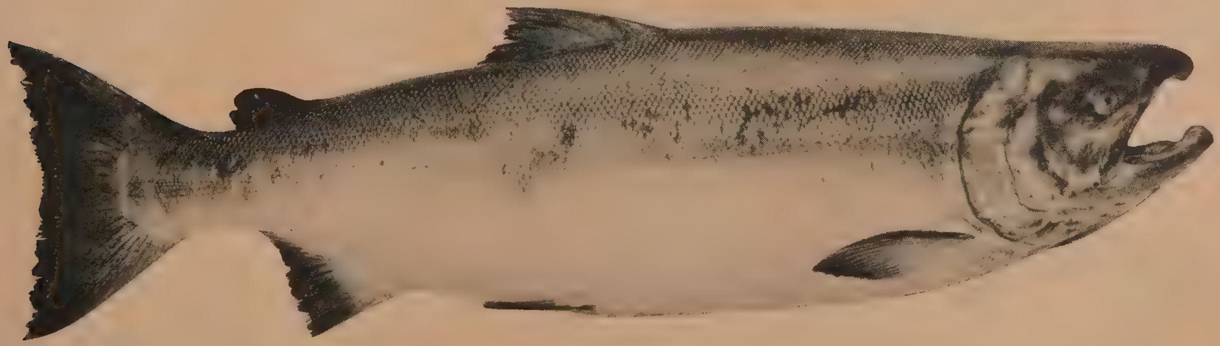

Millions of pounds
0 40 80
Red
King
Coho
Pink
Chum
Total annual catch 130 million pounds
BRISTOL BAY
ALASKA
Purchased in 1867 for 7.2 million dollars
Value of Alaska salmon pack in 1948 96.5 million dollars
Millions of pounds
0 40 80 120
Red
King
Coho
Pink
Chum
Total annual catch 195 million pounds
CENTRAL ALASKA
Millions of pounds
0 40 80 120 160
Red
King
Coho
Pink
Chum
Total annual catch 234 million pounds
SOUTHEASTERN ALASKA
Total annual catch 167 million pounds
BRITISH COLUMBIA
Millions of pounds
0 40
Red
King
Coho
Pink
Chum
Total annual catch 67 million pounds
PACIFIC NORTHWEST
SEATTLE
WASHINGTON
OREGON
SALMON
Millions of pounds
0 20
Red
King
Coho
Pink
Chum
Total annual catch 5 million pounds
CALIFORNIA
CALIFORNIA
▨ Salmon Fishing Grounds
Salmon Canneries

The species has a tendency to develop cycles of abundance, with a more or less regular fluctuation in productivity. Thus there is a definite cycle in the Bristol Bay pack, and an even more marked "big year" cycle occurring every four years in the Puget Sound-Fraser River production.

Sockeyes run into the Copper River in May, and on the Fraser the run has continued as late as October.

SILVER

Silver, Coho or Medium Red Salmon (*Oncorhynchus kisutch*)—Average weight, 8 pounds. (The specimen photographed was 30 inches long.)



King or Chinook Salmon (*Oncorhynchus tschawytscha*)—Average weight 22 pounds. (The specimen photographed weighed 42½ pounds and was 45 inches long.)

CHINOOK

A peculiarity of this species is that Red runs are found only in streams flowing from lakes in their upper reaches, though most spawning is in the small streams tributary to the lakes.

King Chinook

This is largest of the salmons in size, but smallest in quantity canned. Its geographical range is the greatest among salmon, for it is taken from Monterey to the Yukon, and through a long season. Its migrations cover great distances. Fish marked at sea off Southeast Alaska have been recovered in Columbia River, a thousand miles away.

Chinooks may spawn in relatively small creeks, but runs of real importance are confined to the great rivers of the Pacific Slope—the Columbia, the Yukon, the Kuskokwim; Copper River, Taku and Stikine of Southeast Alaska; British Columbia's Fraser and Skeena; and the Sacramento of California, birthplace of salmon canning.

A great part of the Chinook catch is not canned, but is marketed fresh, frozen or smoked.

The Chinook's usual life-cycle ranges from four to six years, sometimes seven. Most young remain in fresh water until their second spring—many until the third—migrating to the ocean when of "fingerling" size.

Pink Salmon

First place among the species in *quantity* canned, and second in value, goes to the Pink, individually the smallest of the five. As with Reds, the entire catch is canned. The number of fish required to make a 48-lb. case varies from 12 to 30 or more, but they are remarkably uniform in size in any particular locality and season.

Pinks are found in considerable numbers in most areas from Puget Sound to the end of the Alaska Peninsula, and a very few on the Bering Sea side. Principal source is Southeast Alaska, where most streams support sizable (sometimes very large) runs; but great runs also normally occur in the Prince William Sound and Kodiak areas of Alaska. The Fraser River in alternate years is one of the great Pink streams, and fairly large runs also occur to many other rivers of British Columbia and Puget Sound—but none farther north.

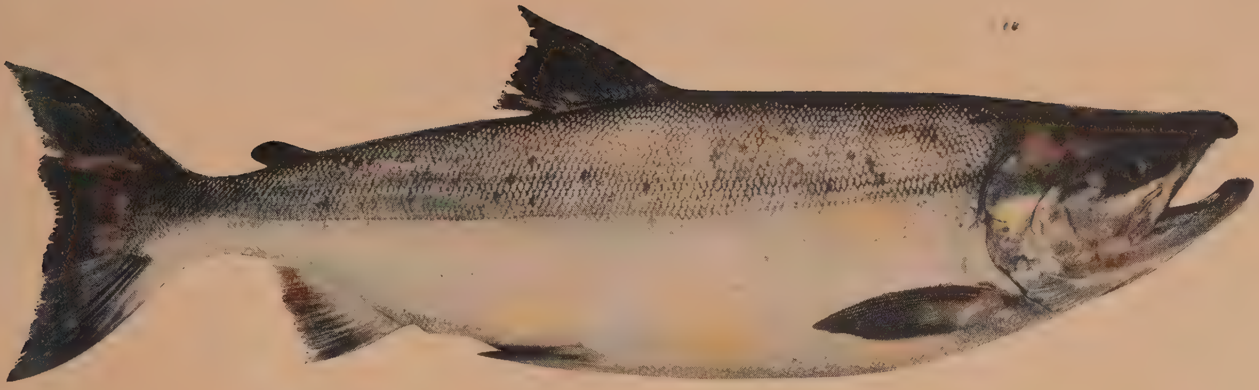
Life-cycle of the Pink is invariably two years. It spawns usually in the lower reaches of streams of all sizes, not far from salt water, and the young move to sea the following spring, as soon as they reach the free-swimming stage.

The two-year cycle has resulted in a remarkable periodicity in the Puget Sound-Fraser River district, which has a large run in odd-numbered years and practically none at all in even-numbered years. A similar phenomenon, but far less striking, is noted in a number of other areas.

Coho or Silver Salmon

The Coho or Silver salmon ranks third in volume of canned pack; and a considerable part of the catch is sold fresh or frozen.

Silvers are found throughout the whole range of the Pacific salmon, though runs of commercial significance appear only between Oregon and Cook Inlet.



CHUM

Chum Salmon (*Oncorhynchus keta*)—Average weight, 9 pounds. (The specimen photographed was 32 inches in length.)

Cohoes or Silvers normally constitute a substantial part of the packs of Puget Sound, the Columbia River, coastal areas, and especially of British Columbia; and in Alaska there are good-sized runs to Cook Inlet, Copper River, Yakutat and most parts of Southeast Alaska.

In most parts of Alaska few Cohoes are usually seen before mid-August. From the lower coast as far north as Southeast Alaska a good many early Cohoes, still actively feeding, are taken at sea by trolling, or by purse seines off Cape Flattery and Vancouver Island. The principal run in "inside" waters from northern British Columbia to the southern limit comes in October.

Chum Salmon

Chum salmon comes third in importance, as to both volume and total value of pack. Although most of the fish are canned, substantial quantities are sold frozen. In average size the fish is slightly larger than the Red but much smaller than the King.

Chums appear in substantial numbers in most Alaskan waters and those of British Columbia and Puget Sound, with smaller runs to the Columbia River and some coastal streams of Oregon. The largest runs are those of Southeast Alaska and British Columbia, though large packs are sometimes made in the Prince William Sound, Kodiak and South Peninsula areas.

In most Alaskan areas Chums appear in fair numbers before midsummer, increasing toward the end of the season and keeping on until late in the fall. Elsewhere November and October are the months of greatest production.

Four years is the normal life-cycle. Chums commonly spawn even nearer tidewater than Pinks; and as with Pinks, the young pass to sea as soon as they are free-swimming.

PACIFIC SALMON DISTRICTS

Their Seasons and Percentages of Production

District:	Principal Season	Average Percentages of Total Pack of Each Species*				
		Red or Sockeye	Pink	Chum	Coho or Silver	Chinook or King
Yukon River	June-July	....	....	....	....	2.2 %
Bristol Bay	June 25 to July 25	60.3 %	†	5.7 %	0.75%	3.35%
Alaska Peninsula	June 1 to August 15	9.4 %	6.7 %	13.0 %	3.7 %	†
Kodiak Island	June-August	6.9 %	20.9 %	6.0 %	1.95%	†
Cook Inlet	May 20 to August 12	7.9 %	3.05 %	11.5 %	3.4 %	9.9 %
Prince William Sound	July 1 to August 10	0.98%	16.7 %	11.2 %	3.08%	†
Copper River	May 1 to September 18	2.8 %	....	....	11.75%	1.6 %
Yakutat	May 15 to September 20	0.6 %	0.11 %	†	3.9 %	†
Southeast Alaska (Northern part)	Late June to late August	2.2 %	10.9 %	19.6 %	9.2 %	†
Southeast Alaska (Southern part)	Early June-Mid-September	2.5 %	31.7 %	26.4 %	25.3 %	†
British Columbia	Late June-Mid-November	17.5 %‡	17.5 %‡	34.7 %‡	39.5 %‡	4.8 %‡
Puget Sound	June through November	5.8 %	9.1 %	10.5 %	13.4 %	5.16%
Washington Coast	May-June and Oct.-Dec.	0.25%	....	1.0 %	2.4 %	0.9 %
Columbia River	May 1 to December	0.37%	....	1.5 %	9.3 %	73.1 %
Oregon and California Coast	June through November	....	....	†	1.7 %	5.2 %

Note—This table is concerned with salmon for *canning* only, and takes no account of substantial quantities sold fresh, frozen or mild cured in many areas.

**Percentages* are based on average production of each species for five years through 1948. Those for areas in the *United States* are percentages of the total U. S. pack of each species.

‡Percentages shown for *British Columbia* are percentages of the total *North American* pack of each species.

†Negligible production of the species indicated.

U. S. Pack of Canned Salmon

	—Pacific Coast States—		—Alaska—		—Total—	
YEAR:	Cases	Value	Cases	Value	Cases	Value
1921-1930 Average	1,147.835	$11,916,541	4,860,058	$33,893,502	6.007,893	$45,810,043
1931-1935 Average	984,706	7,301,890	5,699,775	28,513,777	6,684,481	35,815,667
1936	527,574	5,309,438	8,437,603	44,751,633	8,965,177	50,061,071
1937	885,372	8,386,165	6,669.665	44,547.769	7,555.037	52,933,934
1938	472,721	5,728,892	6,806,998	36,636,897	7,279,719	42,365,789
1939	728,943	7,339,727	5,263,161	34,441,122	5,992,104	41,780,849
1940	535,663	6,575,176	5,069,343	31,474,492	5,605,006	38,049,668
1941	899,589	11,199,317	6,932,040	56,217,601	7,831,629	67,416,918
1942	759,032	13,673,968	5,075,974	48,300,209	5,835,006	61,974,177
1943	275,889	5,110,847	5,428.318	57,824,267	5,704,207	62,935,114
1944	245,588	5,187,136	4,893,059	51,196,140	5,138,647	56,383,276
1945	557,769	7,942,102	4,350,471	44,644,303	4,908,240	52,586,405
1946	560,289	17,003,459	3,949,878	53,157,194	4,510,167	70,160,653
1947	1,329,226	31,969,134	4,312,286	88,669,542	5,641,512	120,638,676
1948	810,075	24,008,466	4,014,891	96,528,730	4,824,966	120,537,196

Commercial Grades of Salmon Are Names of the Five Species

Principal commercial "grades" of canned salmon are established by the five different *species;* Red, Pink, Chum, Coho and Chinook.

All of these varieties are known by more than one name. This has been a source of much confusion. This is increased by the fact that there are some well-recognized trade distinctions based on locality of production or season of canning.

Salmon of all species show little variation in food value. Except for specialty items, all are canned by exactly the same methods, procedure and equipment, and are handled with equal care. Thus the lower-priced salmon packs are *not,* as many have supposed, inferior or less carefully prepared fish of the same kind, but are actually *different varieties* from the more expensive.

A Natural Product

Almost all salmon is canned as a "natural" product—packed in the cans and processed as Nature made it, with removal only of the heads, tails, fins and viscera. In the regular pack it thus includes the skin and bones—softened and made edible by cooking—and the natural oil and juices drawn from the flesh by cooking in the sealed can. Nothing whatever is added except salt for seasoning.

Some of the higher-priced packs receive the addition of extra salmon oil, produced expressly for the purpose by highly sanitary methods. Some special packs are also flavored by smoking or "kippering" the fish; and experiments have been made with other flavoring substances. In all cases, under federal and state laws, the addition of any substance—even salt, or extra oil from the same fish—must be indicated on the label.

Yet another special type of pack is put up with skin and backbone removed.

U. S. Canned Fish Products Ranked as to Volume

Rank—Product:	Pounds Per Case	Total Pounds
1.—Salmon	48	231,598,368
2.—Tuna	21	139,681,953
3.—Sardines (California)	45	119,436,705
Sardines (Maine)	20.3	62,135,093
4.—Fish Animal Food	48	63,542,784
5.—Mackerel	45	57,653,640
6.—Squid	48	16,790,352
7.—Herring, Sea	45	14,690,160
8.—Shrimp	15	8,383,050
9.—Alewives	45	5,541,030
10.—Oysters*	14	4,999,120
11.—Crabs	19.5	4,305,639
12.—Anchovies	48	3,215,712
13.—Clams*	15	2,597,910
14.—Roe and Caviar	48	2,430.192
15.—Shad	45	664,785
16.—Terrapin and Turtle	48	45,120
Miscellaneous	....	44,496,708
Total Volume		782,208,321

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*Drained weight. Miscellaneous preparations of these products are given in gross can contents and therefore are listed in Miscellaneous.

Note—These figures are for 1948.

Basis of Price Differences

Differences in market price between the species result mainly from consumer preference—based principally on color and oil content; and from the natural abundance of the respective varieties as related to consuming demand, with little or no distinction as to nutritive value or flavor.

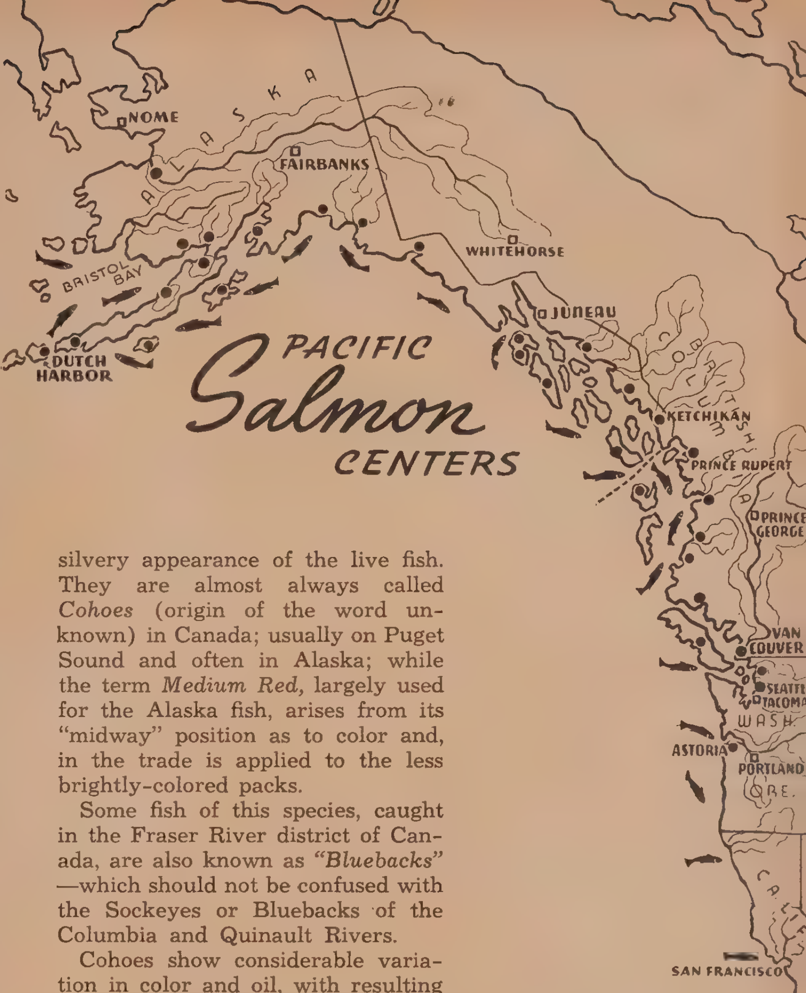
In certain localities, however, some species are more highly colored or richer in oil than in others, resulting in geographic distinctions, as between Columbia River Chinooks and Alaska Kings, or Puget Sound Sockeyes and Alaska Reds. Sometimes such distinctions are the basis of substantial differences in price, sometimes merely in relative salability.

Seasonal variations also occur, the earlier pack of some species being preferred to the later: as summer to fall-pack Chums, or spring to fall Chinooks.

The common and trade names applied to the different species, together with their distinguishing qualities as canned products, and certain trade distinctions between "grades" within some of the species, are discussed below.

King, Chinook or Spring

The term *King,* obviously based on the large size and powerful appearance of the fish, is usually applied to this species from Alaska and Puget Sound. The same species on the Columbia River and to some extent in Alaska, is known as *Chinook*—a name adopted from Indian groups of the Columbia River region. In British Columbia it is known almost exclusively as *Spring.*



Flesh of the King consists of large flakes, usually very fat, tender and of fine flavor. In color when canned, it varies from deep orange-red through salmon-pink to white, with correspondingly wide range of prices.

On the Columbia River (principal source of Chinooks) the fish are carefully graded as to color and oil. The most widely-recognized grades are "fancy", "choice" and "standard," with marked price differentials between them; and Columbia River fancy Chinooks (sometimes termed "Royal Chinooks") have the distinction of commanding the highest market price of all salmon.

From its use for the "fancy" pack, the term *"Chinook"* has become associated with the idea of superior quality. Alaska *Kings,* however, are definitely high-grade salmon, being normally priced very little below Alaska Reds. Some areas of Alaska produce Chinooks that compare favorably with Columbia River fancy, though in very small quantity and not widely known.

Red, Sockeye or Blueback

Red salmon takes its name from the distinctive, bright orange-red color of the flesh.

In the Puget Sound and British Columbia districts this species is universally known as *Sockeye,* a name of obscure origin, believed to be a corruption of an Indian word. The species on the Columbia and Washington coast is usually called *Blueback.* The Washington coast fish may also be known as *Quinaults.*

Flakes of Red salmon flesh—as well as the bones—are small. Texture is rather firm, and the fish has red oil and a distinct flavor.

The species reaches its highest color and oil content in Puget Sound, the Fraser River and some other British Columbia streams, the Columbia, and Quinault River. Sockeyes from these streams vie with fancy Chinooks as the highest-priced canned salmon.

The Alaska fish of this species is usually known as *Alaska Red* or simply *Red,* but may be labeled *Alaska Red Sockeye* or *Alaska Sockeye.* In general, Alaska Reds are somewhat less brightly colored and less oily (consequently firmer) than the Puget Sound fish. They are also much more plentiful, and so are lower in price although they are the highest-priced of the species produced in large quantity.

Most of the Alaska Reds are packed on Bristol Bay.

Coho, Silver, Medium Red

The *Coho, Silver* or *Medium Red,* has flesh about midway in color between that of Reds and Kings. In texture and size of flakes also it comes between Reds and Chinooks.

The term *Silver* or *Silverside,* widely used by fishermen of all districts, and by canners mostly for the Columbia River and coastal product, comes from the silvery appearance of the live fish. They are almost always called *Cohoes* (origin of the word unknown) in Canada; usually on Puget Sound and often in Alaska; while the term *Medium Red,* largely used for the Alaska fish, arises from its "midway" position as to color and, in the trade is applied to the less brightly-colored packs.

Some fish of this species, caught in the Fraser River district of Canada, are also known as *"Bluebacks"* —which should not be confused with the Sockeyes or Bluebacks of the Columbia and Quinault Rivers.

Cohoes show considerable variation in color and oil, with resulting price differentials; the best fish being almost equal to first-class Sockeyes, while some are of rather pale color. The brightest and fattest Cohoes are taken in the ocean, mainly by hook-and-line; being distinguished by the term "ocean-caught" or "troll-caught" Cohoes—often hand-packed and designated as "fancy".

The Delicate Pink Salmon

Delicacy of texture and flavor is the outstanding feature of the *Pink* salmon, so called because of color of its flesh—a delicate pink—with its very small, tender flakes and small bones.

While Pinks vary somewhat in color of flesh, mainly according to district and time of packing, such variations are usually not striking, and there is seldom any appreciable difference in price between various packs.

Because of their abundance (almost half the entire U.S. salmon pack), and owing also to traditional consumer preference for the red-meated varieties, Pinks are normally priced somewhat lower than Cohoes and considerably below Alaska Reds—putting them in the "popular-priced" class which, together with growing appreciation of their high food value and other intrinsic merits, has made them a leading item in most consuming markets. Considering food value and appetizing quality in relation to price, Pink salmon has come to be widely recognized as a most economical food.

Chum or Keta Salmon

Priced at a fairly constant differential below the Pink is the *Chum* or *Keta* salmon—the latter term being

ACKNOWLEDGEMENT

Statistical data in this Canned Fish Hand-i-Book are taken from official sources, largely from the reports of the United States Fish and Wildlife Service, with some from the United States Tariff Commission.

Information on canning temperatures and process cooks has been drawn largely from "Principles and Methods in the Canning of Fishery Products" by Norman D. Jarvis, U. S. Fish and Wildlife Service Research Report No. 7.

the scientific name of the species, adopted from early Russian vernacular, but not in common trade usage. The usual name, *Chum*, is of unknown origin. This species is also known among fishermen and packers but seldom to the trade, as *"Fall"* salmon, from the fact that it appears later in the season than other varieties.

The flesh when canned ranges from light pink to yellowish gray or white; contains relatively little oil; firm in texture, with large flakes, large bones, and rather thick skin, often dark in color.

Chums vary considerably in color and oil according to district and season. Those of westward Alaskan areas, down to and including Kodiak Island, are often a fairly deep pink, showing considerable oil. In most districts those taken in summer are brighter and fatter, with lighter-colored skin, than the later pack, leading to a trade distinction between *"summer Chums"* and *"fall Chums"*, often the basis of a slight price differential; and fall Chums from some districts normally bring somewhat lower prices than the bulk of the pack. The term *"bright Chums"* is also sometimes applied to those having definitely pinkish-colored flesh and light skin.

Though lowest in the scale of consumer preference because of color, Chums come very close to the "fancy" grades in actual nutritive value. Their flavor, though considered distinctive by experts, is to others scarcely distinguishable from that of the more expensive varieties; and among consumers they are regarded as desirable especially as a basis for appetizing cooked dishes.

How Salmon are Caught

Salmon are caught by four fundamental methods—*Entanglement, Entrapment, Encirclement, Hook and Line.*

As a matter of fact, these four methods—with the single addition of *Harpooning*—include just about all of the methods used in *any* fishing.

Various factors influence the choice of method in salmon fishing: species of salmon available; period of the year; maturity of the fish sought; characteristics of the water fished; legal considerations.

In some areas all methods are employed simultaneously.

Gillnetting

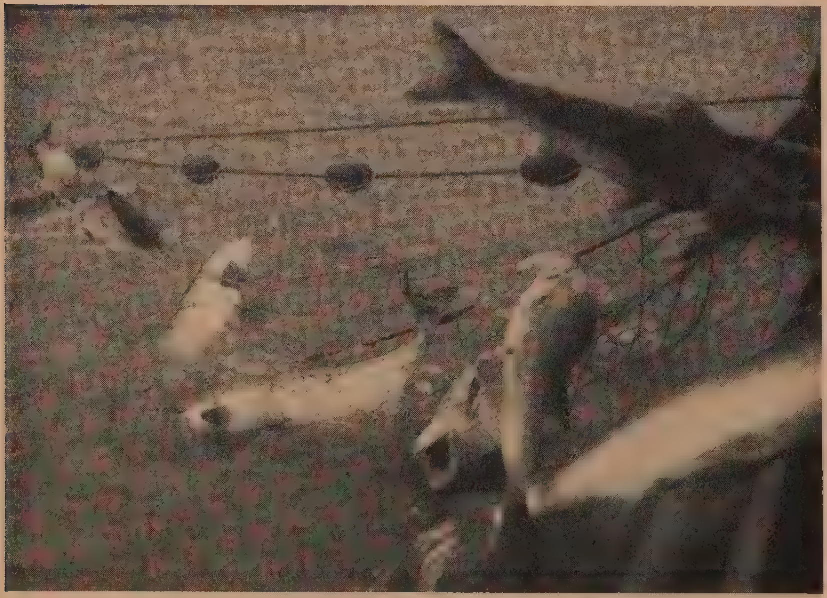
This is the most widely-employed form of commercial fishing, and is the application of the basic method of *Entanglement.*

Fundamentally, the gillnet consists of a web of netting loosely suspended in the water. Fish thrust their heads into the meshes and are caught when the swelling form of the body is held tightly in the mesh.

Salmon gillnets usually are made of fine linen twine, tied with double knots to prevent slippage, and are very strong. Currently, nylon twine is gaining some favor for gillnets, due to its extreme strength and resistance to rot.

Gillnets are highly "selective", in that an individual net can catch fish of only limited size range. Above that, the fish cannot get their heads far enough into the meshes to be caught; below it, they pass through. The nets are hung between a "corkline" and a "leadline", which keep them roughly vertical in the water. Usually, the flotation of the corkline is sufficient to keep the net at the surface; but on occasion the gillnet may be fished as a "diver", in which the leadline is sufficiently heavy to overcome the flotation of the corks, causing the net to fish along the bottom.

Salmon gillnets usually are permitted to drift with the tide or current, the fishing boat drifting with the net; but where gillnets are anchored they are known as "setnets."

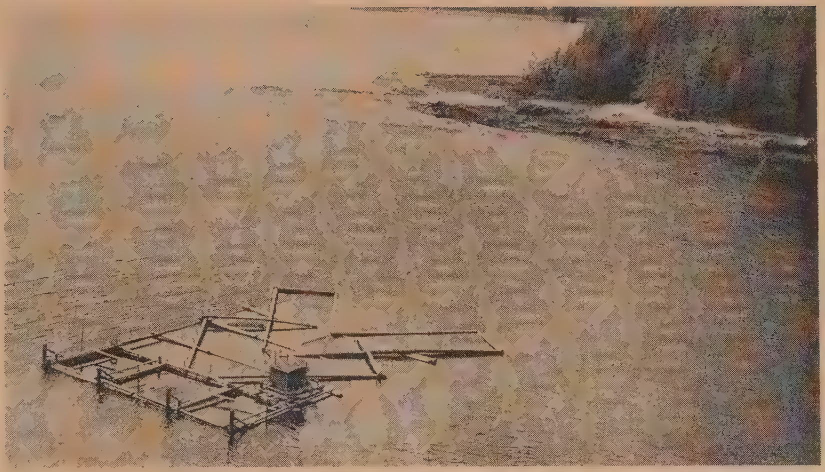


Gillnetting

This picture from Bristol Bay, Alaska, shows plainly how salmon—and many other fish —are taken by means of gillnetting, at once the oldest and also the most widely employed even today of all the various methods of commercial fishing. Note how the fish have thrust their heads through the meshes of the fine linen net, and then have been unable to withdraw.

A Salmon Trap

A floating salmon trap, pictured from the air. Note how the "lead" runs out from the shore at the right to guide passing fish to the trap, whose wire webbing is suspended from this floating structure of logs. This trap consists of two "hearts," whose tunnels lead from one to the other, and then into the "pot," which is the central one of the three rectangular compartments on the left. From the "pot," the fish go through other openings into the "spillers" adjoining, from which they are "brailed" by the tender.



Gillnets are most effective when fished in somewhat muddy waters, and at night—as the fish then do not see the fine web in time to avoid it.

The Bristol Bay salmon catch is made entirely with gillnets, which are important also in the Cook Inlet and Copper River districts of Alaska. Of the Territory's salmon catch as a whole, about 20% is taken by gillnetting.

This form of gear is widely employed in British Columbia in the vicinity of the great streams, such as the Skeena and Fraser. (As a matter of fact, the muddy water in the vicinity of the major streams always encourages gillnetting.)

On Puget Sound gillnetting is a minor factor—accounting for perhaps 10% of the catch; while on the Columbia River it accounts for about 90%.

Brailing a Salmon Trap

Thus the fish taken in a trap are swept alive from the spiller of the trap to a barge, to be towed immediately to the cannery. Fish are kept alive in the trap until they can be used in the plant.

Salmon Traps

The salmon trap is a specialized form of fishing gear employed all over the world, and is the active embodiment of the fundamental principle of *Entrapment.*

In essentials, the salmon trap consists of a *Lead,* which the fish follow into a series of compartments with funnel shaped openings leading finally into the *Spiller,* which is equipped for removal of the fish by a scooping process called *"brailing"*.

Salmon traps reach their greatest importance in Alaska, and are of two types: *floating* and *standing* or *pile* traps.

The latter are composed of piling driven into the bottom in outline of the trap, and then clothed with netting.

Floating traps follow the same outline, but are supported from a floating structure composed of logs, and anchored in place. The floating type of trap may be used in locations where the water is too deep, or the bottom too rocky, to make driven traps feasible.

In modern practice the webbing of all but the "spiller" of a salmon trap is composed of wire, which is discarded at the end of each season. The spiller is of cotton netting for flexibility.

Salmon are taken in traps alive, and considerable quantities can be held at a time. Consequently, traps provide a reserve cushion against sharp fluctuation in cannery fish supply.

There are about 400 salmon traps in Alaska, all in the Central and Southeastern regions.

Traps account for approximately 40% of the Alaska salmon catch.

Fishing by means of traps has been somewhat curtailed in recent years as result of criticism directed at them by operators of other forms of gear. Oregon and Washington have both forbidden the use of salmon traps. British Columbia permits them only in one small area.

In Alaska trap fishing has been under fire for several years. Objection primarily is based upon the granting to a trap operator of the right of fishing in a particular location.

Purse Seining

This form of fishing is the application of the *Encirclement* principle. It was developed on the Pacific Coast

Purse Seining

Here a herring seiner, fishing immediately off the waterfront of Ketchikan, Alaska, has encircled a school of fish and has pursed the bottom of the net, virtually completing the capture of the fish, which can be seen churning the water within the net. The diameter of the circle will be gradually reduced and, as the fish are crowded close together, they will be dipped out of the net and into the hold of the vessel. Seining salmon, sardines, mackerel and tuna is done by this same method, varied only as to size of boats, nets and the meshes of the nets.

as a specialized form of fishing with nets—and since has been widely applied throughout the world in catching fish which have the habit of schooling near the surface.

Purse seining is not effective against scattered fish.

Presence of a school is detected by any one of several means, depending upon the kind of fish and locality. In the case of salmon the schools are detected visually as the salmon are "finning" at the surface or jumping. These actions may be the sign of a school.

The seine is piled on the stern of the fishing boat, which tows a much smaller skiff to which one end of the net is attached. This small boat is dropped astern when a "set" of the seine is begun. The fishing vessel then describes a circle about the school, the seine being pulled from the stern into the water.

When the circle has been completed, and the "tail" of the net recovered, the fishermen use a power winch to draw-in the "purse line", which runs through rings attached to the lower edge of the net. When these rings have all been drawn together and gotten aboard the vessel the net has been "pursed" at the bottom and the fish cannot escape. The circle of the net is then reduced until the fish are crowded together and can be scooped into the vessel by "brailing".

Salmon purse seines may be as much as 1,800 feet in length.

The number of purse seines fished in Alaska varies from 700 to 1,000, each of them fished by a vessel whose length is limited by regulation to a maximum of about 57 feet. On Puget Sound the average seiner is larger, vessels running up to perhaps 75 feet; and about 210 purse seine vessels are active there each season.

In Alaska approximately 35% of the salmon catch is made by means of purse seines. In Puget Sound the purse seines' share of the salmon catch is at least 75%.

Hook-and-Line

Salmon fishing by means of hook and line is relatively unimportant in the matter of volume of production as compared with gillnetting, trapping and purse seining.

Moreover, the percentage of hook-caught salmon which is canned is very small. This method of fishing is used primarily to take salmon for the fresh, frozen or cured fish trade; and only a very small proportion of fish caught in this manner is marketed in tin.

This is due to the fact that when a salmon strikes the hook he is feeding, and the physical condition of the feeding fish lends itself better to marketing fresh, frozen or cured than it does to canning.

In some instances, notably in the case of Cohoes or Silvers, hook-caught fish may be canned, and are well esteemed in that form.

Hook-and-line fishing for salmon is called "Trolling". The fish are taken at sea on large "spoon hooks" or "plugs". These latter are merely an over-sized adaptation of the bass plug of the casting sport fisherman.

The boats used range from 30 to 60 feet in length, and each fishes from six to 10 miles, with about five spoon hooks or plugs at varying depths on each line.

As they are feeding when taken, troll-caught salmon are dressed immediately, and then packed in ice in the hold of the fishing vessel.

In Alaska about 5% of the total catch is taken by trolling—but the percentage of the canned pack produced from troll-caught fish is much smaller than this figure.

U. S. Per Capita Consumption Of Fishery Products

	Fresh and Frozen	Canned	Cured	Total
YEAR:	Pounds	Pounds	Pounds	Pounds
1930	5.9	3.3	1.3	10.5
1931	5.0	3.2	1.0	9.2
1932	4.4	3.4	1.1	8.9
1933	4.2	3.9	.9	9.0
1935	5.2	4.7	1.1	11.0
1936	5.2	5.8	1.0	12.0
1937	5.6	4.2	.9	10.7
1938	5.3	4.8	1.0	11.1
1939	5.4	4.6	.9	10.9
Average 1935-39	5.3	4.8	1.0	11.1
1940	5.7	4.2	.9	10.8
1941	6.3	4.7	.8	11.8
1942	5.3	2.2	.8	8.3
1943	5.6	1.9	.7	8.2
1944	5.6	2.6	.7	8.9
1945	7.1	2.6	.9	10.6
1946	6.3	3.8	1.0	11.1
1947	6.2	3.8	.8	10.8
1948	6.5	4.5	*	11.1

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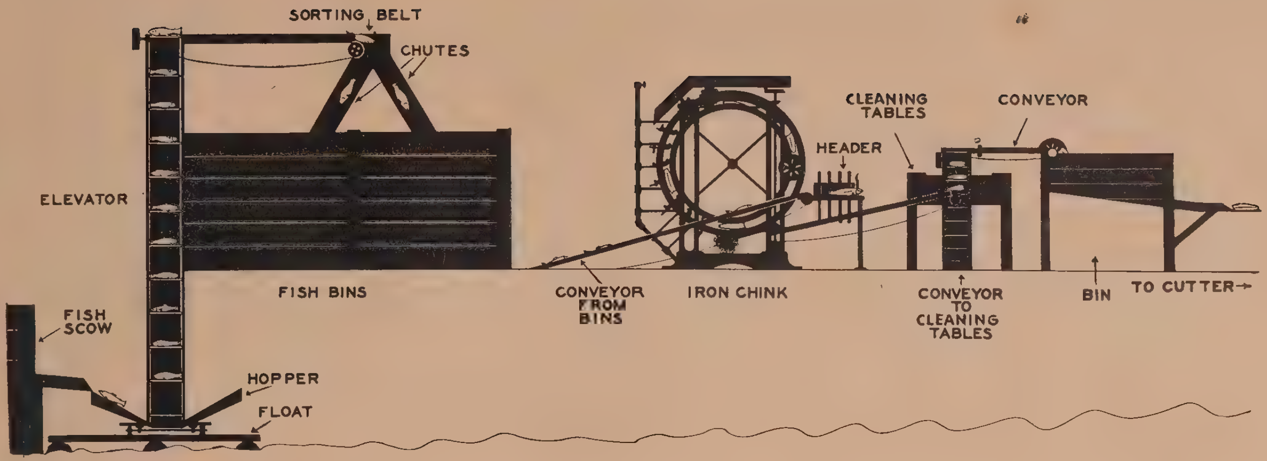
*Included with canned fish.

NOTE—Canned consumption excludes food products containing only small quantities of fish or shellfish, such as clam chowder. All figures are given in pounds of *edible weight.*


SORTING BELT
CHUTES
ELEVATOR
FISH BINS
FISH SCOW
HOPPER
FLOAT
CONVEYOR FROM BINS
IRON CHINK
HEADER
CLEANING TABLES
CONVEYOR
CONVEYOR TO CLEANING TABLES
BIN
TO CUTTER→

Step 1—The Salmon are Dressed for Canning.

How Salmon are Canned

Salmon is delivered to the cannery fresh from the water, either by the fishing vessel itself or by a tender which has received the fish from the fishing craft or a salmon trap on the actual fishing grounds.

The fish enter the plant by elevator-conveyor or hoist, and are carried to the fish bins on a belt conveyor, being sorted into separate bins according to species.

These fish bins have floors sloping toward gates through which fish for actual packing operations are drawn for delivery by conveyor to the Iron Chink.

This is a machine unique to salmon canning, which removes the head, tail and fins, slits the belly and removes the viscera, all at the rate of 60 fish per minute.

From the Iron Chink the dressed fish are carried to the "slimers," a number of workmen who inspect each fish for condition, and who correct any faults in the mechanical cleaning.

How the Cans are Filled

The fish are next cut into lengths appropriate to the height of the can in which they will be packed. This cutting may be done either by a separate gang-knife or by a unit which operates as an integral part of the filling machine, which is the next step in the operation.

The salmon can-filling machine molds a cylinder of fish to a diameter which will slip readily into the can, and then presses this into the container, an "extractor" at the same time permitting the escape of entrapped air as the cylinder of fish enters the can. Modern fillers operate at speeds as high as 240 cans per minute.

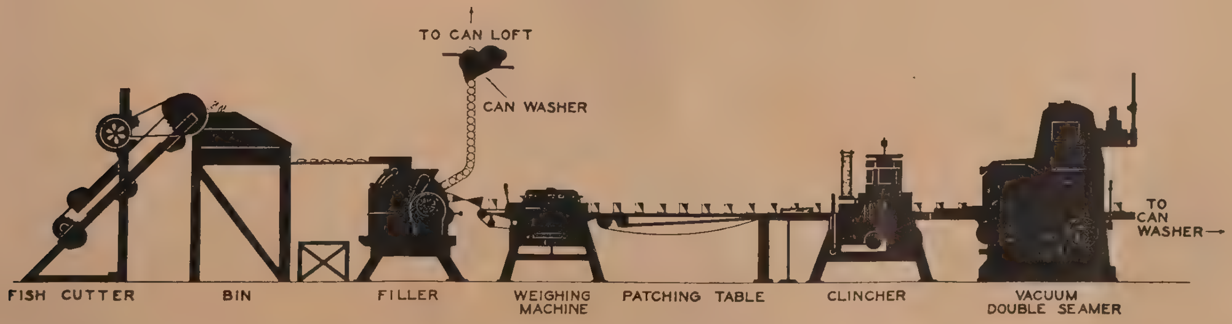
From the fillers the cans go through weighing machines which check weights to a fraction of an ounce and reject any under-weight cans. These are brought up to weight by inspectors, who watch all cans for imperfections in filling.

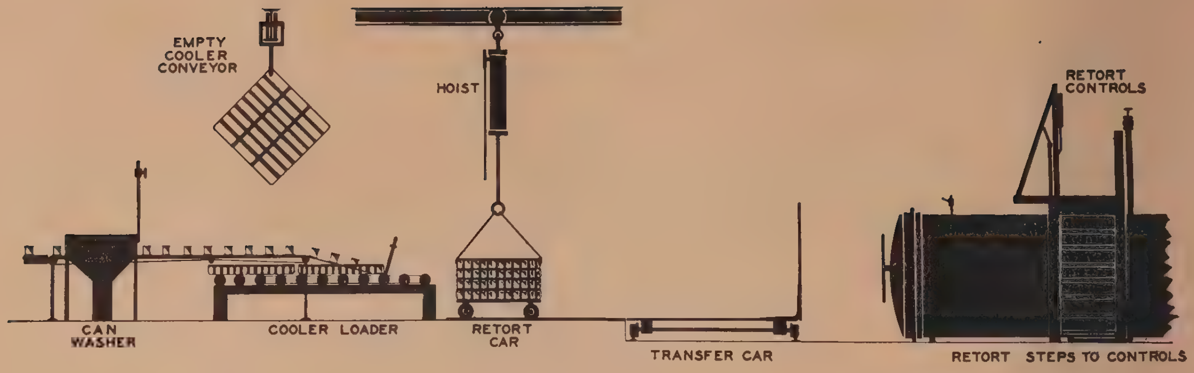
A measured amount of salt is deposited in each can just before the top is applied and loosely attached by the "clincher," from which it immediately enters the vacuum seaming machine through a pressure lock.

The Vacuum Packing Process

The vacuum machine operates inside a tight housing, from which the air is exhausted by a vacuum pump. This continuous pumping removes the air entering with the can through the pressure lock, and also the air entrapped in the can. The loosely clinched can top allows

Step 2—The Cans are Filled and Vacuum Sealed.


TO CAN LOFT
CAN WASHER
TO CAN WASHER→
FISH CUTTER
BIN
FILLER
WEIGHING MACHINE
PATCHING TABLE
CLINCHER
VACUUM DOUBLE SEAMER



Step 3—The Retort is Loaded for the Process Cook.

the air to escape, and as soon as this has been accomplished the machine finishes the seam on the can, providing an hermetic seal before the can moves out of the machine through another lock.

Filled cans are washed in a detergent solution, rinsed, and then distributed by machine into "coolers," which are shallow iron trays. A stack of filled coolers is built up on a low wheeled frame, and the entire stack is pushed into the retort or autoclave for the process cook.

This cook is usually 90 minutes at 240°—for 1 lb. tall cans—and at its conclusion the cans are given a second wash, then cooled and the trays unloaded mechanically. They may be labeled at this stage, although in Alaska operations much of the salmon is labeled later. Whether or not labeled at the cannery, the cans roll to a case-loading machine, which places 48 cans in the fibre case, passing it along to the machine which closes, glues and seals the case ready for shipment.

Hand-Packing Fancy Fish

The flow-sheet described above is that typical of the high-speed machine-butchering, machine-filling cannery from which comes the great majority of the canned salmon pack.

In some districts, notably the Columbia River, the salmon are butchered by hand. This practice is followed because of the wide variation in the size of the individual fish in a catch of Chinook salmon; and also because they are caught over a longer season and are not delivered in the heavy volume requiring machine operation.

Hand-filling of the cans is also practiced, particularly when the volume of fish does not peak in a great run, and also when putting up fancy packs of the higher grades.

Hand-filling is confined to flat or oval cans. Talls are never hand-filled.

Plant Investment Very Large

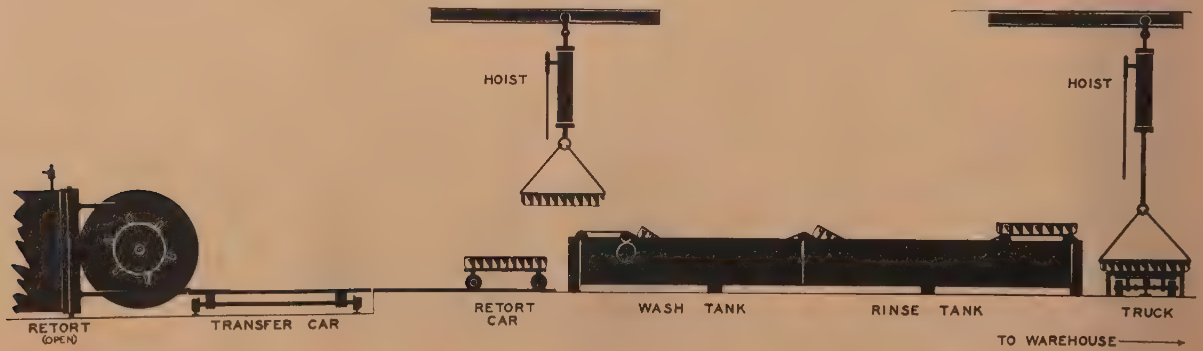
The nature of salmon runs, in which enormous volume of fish is taken in a period of a few weeks, sometimes even in a few days, makes it necessary to maintain a plant with capacity for handling the extreme peaks.

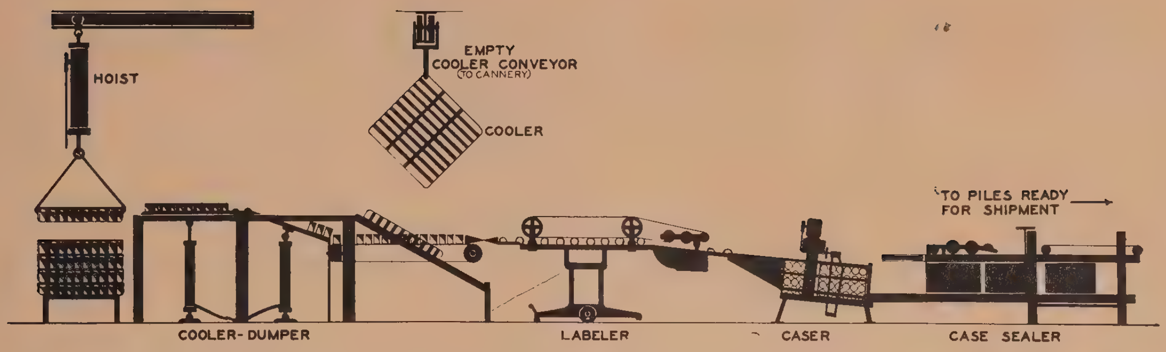
This obviously involves large investment, not only in a plant erected at a remote point where costs are fantastically high, but also in the men to man the machines at peaks of run.

This investment demand is one of the unusual cost factors entering into salmon packing.

ACKNOWLEDGEMENT—The silhouette sketches of the salmon canning flow sheet reproduced herewith were drawn by O. E. Shostrom, Northwest Branch, National Canners Association.

Step 4—After Processing, the Cans are Washed.





Step 5—The Cans are Unloaded, Labeled and Cased.

Bristol Bay operations offer a case in point. The season there is only 24 fishing days in length—and may be cut shorter. At the same time, the Red salmon runs characteristic of Bristol Bay peak during only about 10 days of the entire season. This requires tremendous outlay for plant and equipment to handle the heavy run, and it should be recalled that the cannery and its machinery have an annual productive period less than a month in length.

Canning Frozen Salmon

Canning of salmon which has been previously frozen has been one of the noteworthy developments of the business in recent years.

Originally undertaken during wartime periods of strong demand for canned salmon at a time when the market for frozen salmon was weak, the practice in 1948 and 1949 was extended to include the freezing of salmon at periods of peak production for subsequent canning at times of reduced pressure, or in areas of lower cost.

Objective examiners recommend that the period during which salmon are held frozen prior to canning be kept as short as possible; and that freezing and storage be in strict accord with the best fish refrigeration practice.

Canned salmon which has been frozen prior to canning appears to develop somewhat more "curd" or coagulated protein than is normally the case with salmon canned fresh.

Color Entirely Natural

Although salmon has been canned for 80 years, misconceptions still exist regarding the differences in the color of the several species, and also between different packs and grades of the same species.

These variations in color are entirely natural.

No artificial color is ever added to canned salmon; nor are differences in color ever the result of varied packing processes.

The several species have flesh of distinctive color, but considerable range of color may occur in the same species. Such color range is particularly notable in the case of Chinook salmon, and is associated with natural seasonal or regional variations in the color of the flesh.

The color of the salmon changes in the process of cooking, as in the case of many foods; but pale salmon is pale by nature.

All Salmon Canned Alike

The canning process for all varieties and grades of salmon is exactly alike in its fundamentals. Save for hand-butchering and hand-filling, as discussed elsewhere, there is no material difference in salmon-canning methods.

The difference in the color of various lots of canned salmon does not result from the packing process and cannot be influenced by it. Chums and Reds are packed by exactly the same method, on exactly the same machines, but they look very different when the can is opened.

"Scorching" or "Stackburn"

"Scorching" is a term used by the canned fish trade to express off-flavors in the canned product as result of improper cooking procedure. "Scorching" does not usually involve actual carmelization or change in color, although in exaggerated cases fish adhering closely to the heated metal under scorching conditions may be slightly browned.

Prolonged cooling of processed salmon sometimes results in an excessive cook which produces "scorching." Again, this may result from an overfilled can in which expansion of the fish results in its being pressed too tightly against the heated metal of the can.

This condition is also called "stackburn" because it can be produced by stacking canned fish before it is cooled, the residual heat resulting in overcooking.

Conversion for Standard Cases

PRODUCT:	*Pounds Per Case*
Salmon	48
Sardines:	
California	45
East Coast	20.3
Tuna:	
Fancy and Standard	21
Flakes and Grated	18
Mackerel	45
Herring	45
Shad	45
Fish Flakes	42
Shrimp, wet pack	15
Clams	15
Clam Chowder, etc.	30
Crabs	19.5

How Salmon Goes to Market

Process of moving canned salmon to market differs sharply from that of most canned fish items, or canned foods generally, because the majority of the pack is produced in Alaska during an intensive operating season, and delivery necessarily must wait upon steamer shipment and a thorough system of inspection designed to protect the buyer and insure him of first-class quality.

Because these several essential preliminary steps are not common to all canned commodities, and thus the distributive trade is not familiar with them, the principal factors involved in the handling of salmon between the cannery and its actual dispatch to the buyer are reviewed here-after.

Seasonal Peaks

Much of the salmon pack for a district is canned during comparatively few days during the peak of the "run". This period of high production may constitute only a small part of the legal season for the area.

For example, the season on the Columbia River runs from May 1 to December, but the majority of the production there comes during the three weeks from August 5 to 25.

Similarly, fishing in Central Alaska actually becomes legal May 1, but the peak of production is reached in August.

Accordingly, press announcement of the opening of the Alaska salmon season does not mean that new-pack salmon will be available for shipment in volume for many weeks; and newspaper stories of the arrival of the year's first parcel of salmon at Seattle from Alaska may refer to only a dozen cases snatched out of the first day's run weeks before substantial consignments will be received.

U. S. Canned Fish Products Ranked as to Value

Rank—Product:	Number of Plants	Value of Products
1.—Salmon	176	$120,537,196
2.—Tuna	65	112,612,296
3.—Sardines (Maine)	47	26,921,926
Sardines (Calif.)	54	21,892,893
4.—Mackerel	68	9,850,834
5.—Shrimp	57	7,791,313
6.—Fish Animal Food	16	6,971,003
7.—Crabs	53	4,846,494
8.—Oysters	48	4,777,531
9.—Herring	35	2,823,994
10.—Clams	36	2,029,484
11.—Roe and Caviar	59	1,473,320
12.—Squid	20	1,373,810
13.—Anchovies	23	755,458
14.—Alewives	19	639,356
15.—Shad	20	136,851
16.—Terrapin and Turtle	4	30,899
Miscellaneous	111	10,716,821
Totals	489	$336,181,479

Note—These figures are for 1948.

U. S. Exports of Canned Salmon

Year:	Production 000s Pounds	Exports 000s Pounds	Ratio, (Per Cent) Exports to Production
1929	335,553	40,967	12.2
1933	305,398	26,539	8.7
1935	289,339	45,312	15.7
1937	362.642	37,979	10.5
1938	349,426	48,291	13.8
1939	287,621	40,766	14.2
1943	273,802	69,486	25.4
1946	220,737	51,359	24.1
1947	268,348	61,574	22.9
1948	223,697	†2,093	‡00.9
1949	*258,000	†9,299	‡ 3.6

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*Preliminary figures. †January through September only.

‡Calculated on the basis of nine months' exports.

Shipment by Steamer

During the principal packing season in Alaska excellent steamer service is maintained, and the salmon is loaded out of the canneries without delay. However, a ship must take cargo from several plants and several ports, and this takes time.

Moreover, shipments from Alaska to Seattle during the producing season will run from 100,000 to 250,000 cases. Discharge of this quantity of salmon, picked up from many different producers, necessarily requires considerable time, for each lot must be segregated as to the packer and species. Each "code" owned by each packer is kept together if it is at all possible.

The first step after unloading and segregating is for the ship's supercargo and the dock supervisor to check the actual amount delivered. No one can work on the salmon in the way of preparing it for shipment until these supervisors agree on count.

Laboratory Inspection

As one of the several safeguards taken to protect the buyer of canned salmon, parcels received from Alaska are sampled and examined by the staff of the National Canners Association, Northwest Branch, inspection laboratory.

Random samples are drawn from a lot, the number of samples per 1,000 cases varying somewhat according to the average size of the fish of that species. Obviously, if the fish are large—such as Kings—a smaller number of cans is necessary to give a representative sample of the fish in the parcel than is the case with Pinks, where the individual fish are only about one-fifth as large.

Report is made to the packer of the results of each inspection. In the event that this examination shows *any* fish of questionable quality in a lot, the packer is immediately informed and the particular code involved is set aside for re-examination. This involves much more extensive sampling to determine the character of the parcel, which may be passed on re-examination or reconditioned—a process described elsewhere in this Hand-i-Book.

Labeling and Casing

Due to the extreme speed with which salmon must be packed during the peak periods in the Alaskan runs, and to the uncertainty of label requirements until the goods are sold, a large percentage of the salmon packed in Alaska is not labeled and finally cased until after it has reached Seattle and been inspected.

Crews of trained workmen do the labeling, removing the salmon from the cases, running them through labeling machines, marking and sealing the cases. A crew can handle about 100 cases per hour.

Congestion at the steamer terminals during periods of heavy shipment and the demand for trained crews necessarily produces some delays in getting the goods ready for shipment even after they have been inspected and passed.

Another common cause of delay in connection with shipment of parcels to carry buyers brands is delay in receiving the labels, which also occasionally need trimming to fit the cans, or imprinting, and this occasions further delay.

Loading and Shipping

Proper loading and securing of canned salmon in rail cars is a specialized operation, just as is labeling; and loading has become increasingly complicated with the growth of pool cars and stop-over cars, with their different labels and species to be carefully segregated.

Most salmon shippers have a weight agreement with the Transcontinental Freight Bureau of canned seafoods, and these weights are used in calculating the charges on cars. Details of the most common weights are listed in an accompanying table.

Salmon sellers normally reserve the right to name the originating rail carrier. In most instances a 60,000-lb. car is required to take the carload rate, but for Group A territory the minimum is 70,000 lbs.; and for Group B it is 77,000 lbs.

Canned Salmon Shipping Weights

Standard Cans:	Solid Fibre Cartons, Lbs.	Corrugated Fibre Cartons, Lbs.
48/1-lb. tall	62	60.5
48/1-lb. flat	61	......
48/½-lb. flat	33.5	32.5
96/¼-lb. flat	36.5	......

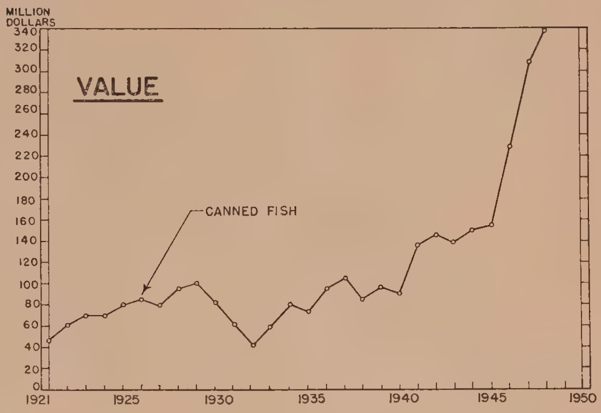
Tariff on Canned Salmon

The import duty on canned salmon has stood at 25% ad valorem for many years without change, save that by the Geneva agreement of 1948 it was bound at this rate.

For many years the import duty on fresh or frozen salmon stood at 2c per lb., but in 1945 this was reduced to 1c, and in 1948 further reduction to ½c per lb. was effected.

These reductions in the tariff on fresh and frozen salmon had rather important effect upon the American production of canned salmon, in that it facilitated the import of salmon caught in Canada and delivered to points on Puget Sound for canning.

Soaring Value of Canned Fish



In recent years this trade has been of some little importance, and at times the Canadian government has imposed export limitations to protect the fish supply of the British Columbia salmon canners.

Crystals in Canned Fish

Commonest source of consumer complaint based on finding foreign substances in canned fish is that of "glass"—which almost invariably turns out to be harmless phosphate crystals formed naturally in the can from the naturally-occurring food chemicals of the fish itself.

Cause of these crystals is not definitely known. They occur very rarely, and are entirely harmless in fact, although they may very closely resemble small fragments of glass. They dissolve readily in an acid solution, and the quick and easy test is to place the crystal in heated vinegar. The harmless crystals, which are actually magnesium ammonium phosphate, will disappear quickly.

The crystals are perhaps most commonly encountered in canned crab, where they usually form on the vegetable parchment can liner. Crystals forming in canned crab are usually minute. Those in canned fish often are considerably larger.

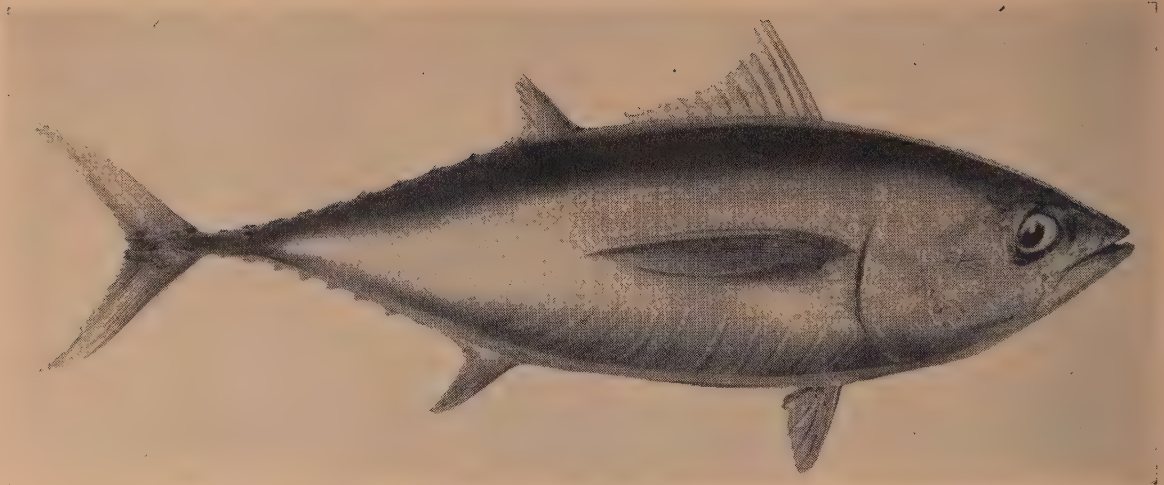
Shrinkage in Fish Canning

Fish products suffer substantial shrinkage in canning, either through dressing in preparation for packing, or through loss in pre-cook or other preliminary treatment, or both.

Salmon dressing loss ranges from 30% in the case of Chinook and 33% for Reds, Silvers and Chums to 35% in the case of Pinks. The latter are the smallest of the salmon, and it is axiomatic that the smaller the fish the greater the percentage of loss in preparation.

Crabs present instances of product suffering shrinkage both in dressing and in pre-cook. Loss of weight in dressing Pacific crabs and removing shell is about 73%, while the meat shrinks about 2% more in pre-cooking.

Percentage of shrinkage in a number of important canned fish products is as follows: California sardines, 50%; California mackerel, 60%; Albacore, 60%; other tunas, 64%; Shad, 35%; Atlantic oysters, 93%; Pacific oysters, 80%; Shrimp, 75%.



YELLOWFIN Yellowfin Tuna (*Neothunnus macropterus*)—Principal source of canned tuna.

The 4 Pacific Tunas

There are four distinct species of tuna which are commonly canned by American packers. A fifth species, from the far western Pacific, is permitted to be packed as tuna under the tuna industry's Trade Practice Rules.

Of the five species of tuna, only the Albacore may be labeled as "White Meat". The other species, being slightly deeper in color when canned, are customarily canned as "Light Meat" tuna, or just as "Tuna".

Little—actually almost nothing—is known of the life history of any of the tunas. They are "Scombroid" fish of the Mackerel family, far-ranging, pelagic fishes of the open ocean. Although they are usually caught in the vicinity of some land, their presence close to the shore appears to be merely a phase of wide migration.

Alaska experienced a run of Albacore in 1948, extending the known range of this tuna far to the north.

Where the tuna spawns, and when, and at what age, Man is only just beginning to learn.

We know there are tuna in almost all the warmer seas of the world, but whether the tunas of the mid-Pacific are a part of the same population as that fished along the Pacific Coast of the Americas is an unanswered riddle.

Albacore

Highest-prized and highest-priced of the tunas is the Albacore, known to the scientist as *Germo alalunga*.

This tuna is an unpredictable fellow.

In California he provided the major portion of the tuna pack from the beginning of the industry to the early "Twenties". Then, after a record year in 1925, the species utterly disappeared, and was not again a commercial factor in the California fishery until 1942.

In Pacific Northwest waters, on the other hand, the fish were never taken commercially until about 1937, and the first sizable pack of Albacore was put up in Oregon and Washington in 1938.

In California waters, on the other hand, the run of Albacore built-up with the passing of the 40's, and in 1948 and 1949 reached the greatest volume ever known.

The Albacore is the living embodiment of the streamlined form, with the pointed head of a machine-gun bullet and the tapering tail of a jet plane.

The pectoral fins—those just behind the gill openings—are long and sabre-shaped, actually being half the length of the entire body, and are the outstanding single characteristic of this tuna. The fisherman sometimes calls the Albacore "Longfin".

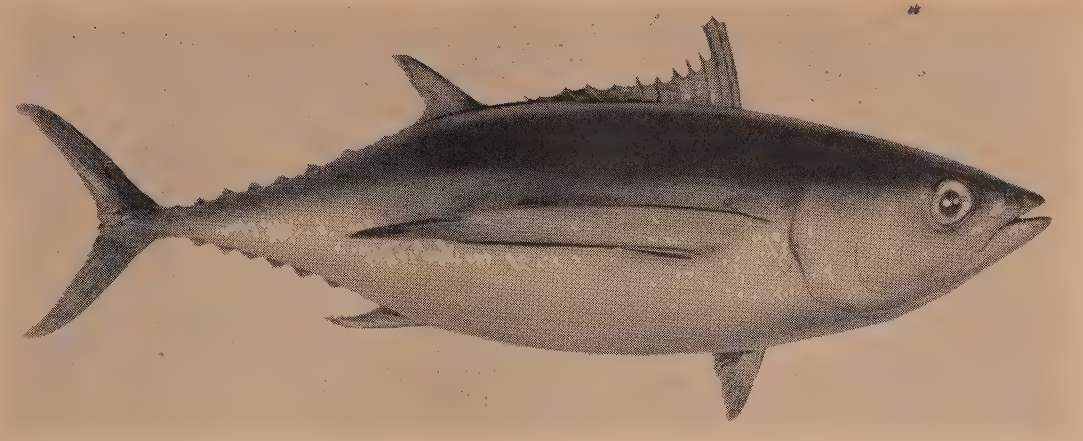
Proof of the speed of these fish, and the natural provision for it, is the fact that these long sabre-shaped fins when at rest actually lie in depressed grooves in the body of the fish. So also the dorsal fins along the back, which can be folded down into a groove entirely out of sight, reducing water resistance to the utter minimum.

Three physical characteristics distinguish the Albacore from the other tunas.

1. The color of the flesh when prepared by canning is much lighter. Despite the fact that the Albacore is called White Meat Tuna, it is not white in the sense that the flesh of cod or halibut is white, but rather as the breast of chicken or turkey is "white".

2. Texture of the flesh of the Albacore is firmer than that of the other species, permitting a larger percentage to be canned as "solid pack."

3. "Recovery" is greater. This means that a larger



ALBACORE

Albacore Tuna (*Germo alalunga*)—The only White Meat tuna.

number of cases can be canned from a ton of Albacore of equal size than it is possible to produce from a ton of any of the other species.

Commercial Albacore range in size from 9 to 30 lbs., but the average of those taken along the Pacific Coast is not over 15 lbs. The fish caught from Mexico north to Alaska are regarded by the scientists as immature, in that they have never spawned. Fish taken in the vicinity of the Hawaiian Islands, and west from there, generally are larger than the eastern Pacific average, and show evidence of having reached sexual maturity.

Yellowfin

This tuna is by all odds the most important factor in the tuna pack, accounting for more than half of the entire American catch.

Virtually the entire production is taken from waters off Central and South America, only a handful of Yellowfin coming from California waters.

Yellowfin tuna range in size to above 200 pounds, although canners prefer not to pack specimens of more than 150 pounds in weight. The fish are taken throughout the year along the tropical and sub-tropical coast, generally moving northward during the summer months, and south again in the cooler part of the year above the Equator.

This tuna is taken in the southwestern Pacific, but the primary concentration known is that along the coast of North and South America. Scientists are beginning to find evidence that there is some spawning of Yellowfin in the vicinity of Costa Rica, but almost nothing is known of the life history of the species.

The flesh of the Yellowfin tuna is characteristic of the Light Meat grade of canned tuna. It is relatively soft in texture and full in flavor.

Scientific name of the Yellowfin is *Neothunnus macropterus.*

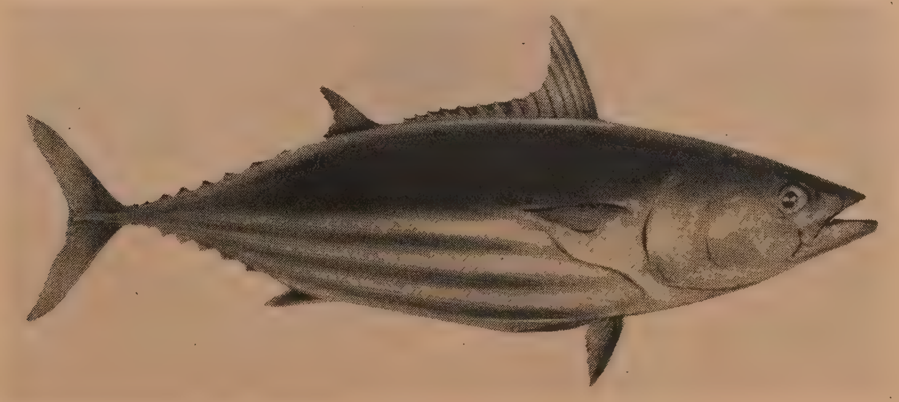
Skipjack

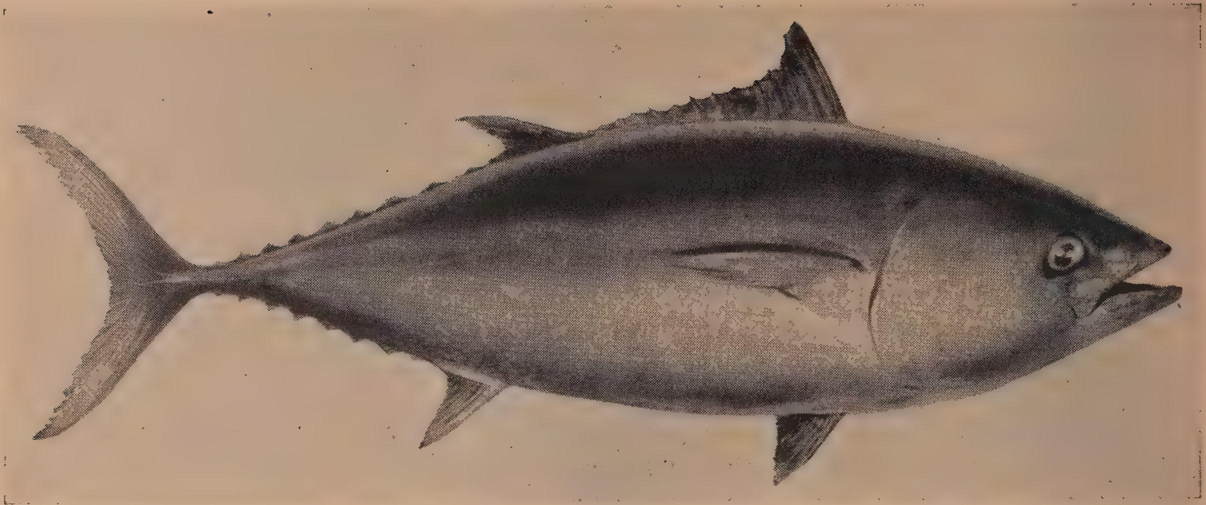
This is the smallest of the tunas, but second to the Yellowfin in importance as a component of the canned pack.

A little fish, ranging up to about 25 inches in length, the Skipjack is readily distinguished by a number of dark horizontal stripes on the silvery surface of the lower part of the body. This marking leads to the name Striped Tuna, which is sometimes given to the

SKIPJACK

Skipjack or Striped Tuna (*Katsuwonus pelamis*)—Second source of light meat tuna.





BLUEFIN

Bluefin Tuna (*Thunnus thynnus*)—Most widely distributed of the tunas.

species, although its use seems to be declining in favor of the term Skipjack.

Like the Yellowfin, the Skipjack tuna is caught almost exclusively in the waters off the coast of Mexico, Central and South America; the catch from California waters proper being insignificant.

Due to the small size of the Skipjack, recovery in cases canned per ton of fish is relatively small. The color of the flesh is slightly darker than Yellowfin, although this difference is so fine as to be noted only with difficulty.

Texture of the flesh is soft, and Skipjack must be handled with special care aboard the fishing vessel.

The Skipjack which constitutes so important a part of the American tuna supply is known scientifically as *Katsuwonus pelamis*. There is another closely related species called the Oceanic Skipjack.

These two species make up the most important tonnage of the tunas taken in the western and mid-Pacific.

Bluefin

This is the "Tunny" of the ancient Romans, the tuna of classical antiquity, found in warm seas throughout the entire world, but never in great concentrations supporting major fisheries. Scientific name is *Thunnus thynnus.*

The Bluefin on the Pacific Coast is taken usually during the early summer, and along a relatively short section of the coastline from the latitude of Los Angeles south down the coast of Mexico. About one-third of the total Bluefin deliveries of California are taken from the ocean off that state, with two-thirds coming from the sea off the Mexican peninsula of Lower California.

Bluefin is the tuna of greatest interest to the sportsman, and is the species which supports the sport tuna fishery of the Atlantic Coast, and which provides a commercial fishery of growing importance in the Maritime Provinces of Canada, as well as along the coast of Maine.

The "Tuna-Like Fishes"

Official statistics often list "Tuna and Tuna-Like Fishes". This latter characterization refers to two species which resemble tuna somewhat, and which are canned in identical manner, but which may not be labeled as tuna.

BONITO—

This is the fish most commonly referred to under the "tuna-like" designation in the statistics. It is a close relative of the tunas, and somewhat resembles the Skipjack in appearance. The flesh is somewhat soft in texture.

Substantial quantities of bonito are canned, and it is an important factor in imports, particularly from the west coast of South America. In the western Pacific this species is said to be abundant.

YELLOWTAIL—

This "tuna-like" fish belongs to a totally different family from the true tunas, and resembles tuna much more closely as a canned product than it does either in appearance or scientifically.

Yield of Canned Fish Products

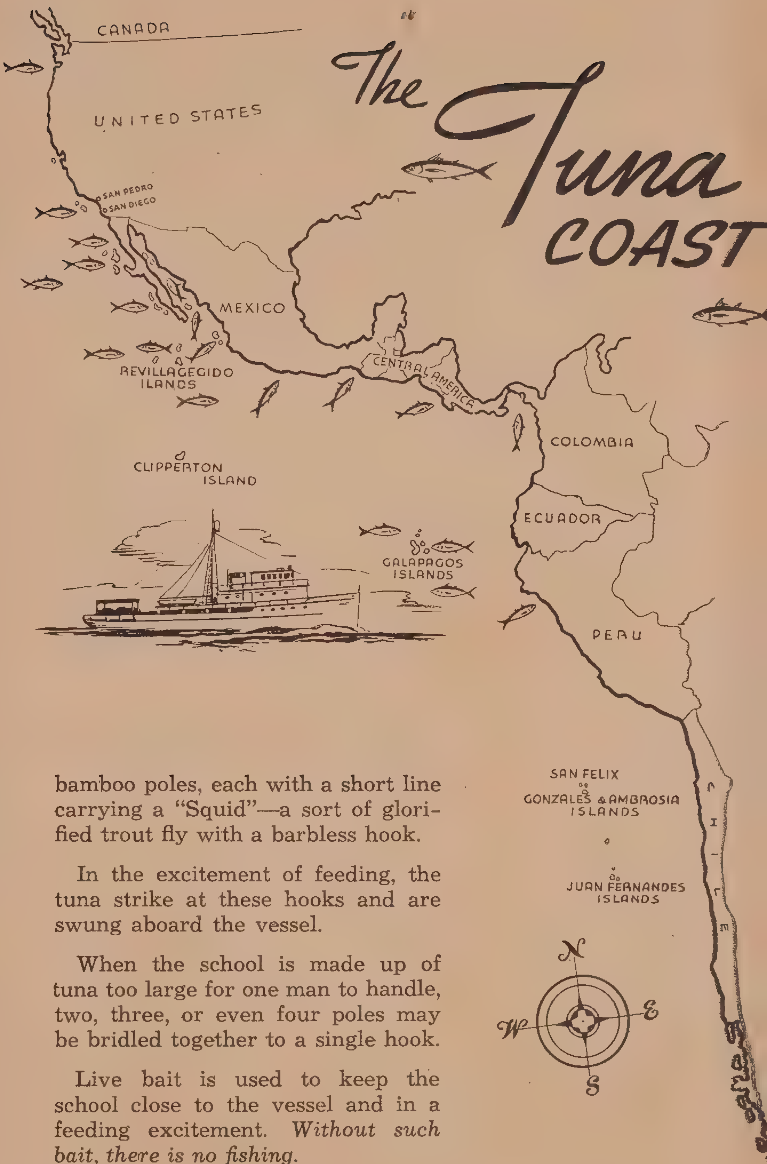
Numbers of individual fish required to produce a case of the several products may vary widely between seasons and districts. For example, it is quite possible to can a full case of Chinook salmon—four dozen 1-lb. cans or eight dozen halves—from a single salmon. On the other hand, as many as five fish may be required.

Red salmon run much more uniform in size, requiring from 12 to 13 per case; and Silver salmon are usually counted 9 or 10 to the case, with Chums about the same. Although Pink salmon are said to average 17 to the case, not infrequently as many as 24 may be required.

Under the California law, canners are required to pack 13.5 cases for each ton of fish used in canning. The average is somewhat above this figure, as fish in good condition will yield about 20 cases per ton.

An average of four dozen Pacific crabs are required to pack a case of canned crabmeat.

HOW and WHERE Tuna is Caught



American tuna fishermen take the fish by three distinct methods:

1—*Hook-and-line* in connection with live bait;

2—*Purse seining;*

3—*Trolling* with specialized lures called "jigs."

In the Orient a number of additional methods of tuna fishing are employed, but to date these have not been adapted effectively to the fish encountered and the type of operations engaged in by American tuna fishermen.

Live-Bait Fishing

Fishing for tuna with live bait is the backbone of the business, and takes by far the larger part of the catch. This method may be employed by craft of any size from perhaps 50 feet up, but in general it is practiced by vessels of the type which has come to be known throughout the world as the "tuna clipper."

Stripped to its essentials, the definition of a tuna clipper might be phrased thus:

"A vessel equipped to carry small fish alive for use as bait; and capable of being trimmed in such a way as to bring its stern rail as low as possible in the water."

Outwardly, the tuna clipper is readily recognized by the big bait tank carried on the stern. Sea water is circulated through this tank and the small fish—sardines and anchovies—are kept alive in the tank until they are used in fishing.

Actual fishing from a clipper is done by men standing on iron racks hung outside the rail at the stern of the vessel, which is trimmed down until the men are standing almost level with the water. This is necessary in order to enable them to swing the big tuna aboard with their poles.

When a school of tuna is located—which may be accomplished by observing them feeding, by catching a fish on a trolled lure, by watching birds or other means—a few of the live fish from the bait tank are thrown into the water alongside the clipper. This induces a feeding frenzy in the school.

The fishermen on the racks are equipped with heavy bamboo poles, each with a short line carrying a "Squid"—a sort of glorified trout fly with a barbless hook.

In the excitement of feeding, the tuna strike at these hooks and are swung aboard the vessel.

When the school is made up of tuna too large for one man to handle, two, three, or even four poles may be bridled together to a single hook.

Live bait is used to keep the school close to the vessel and in a feeding excitement. *Without such bait, there is no fishing.*

Tuna Purse Seining

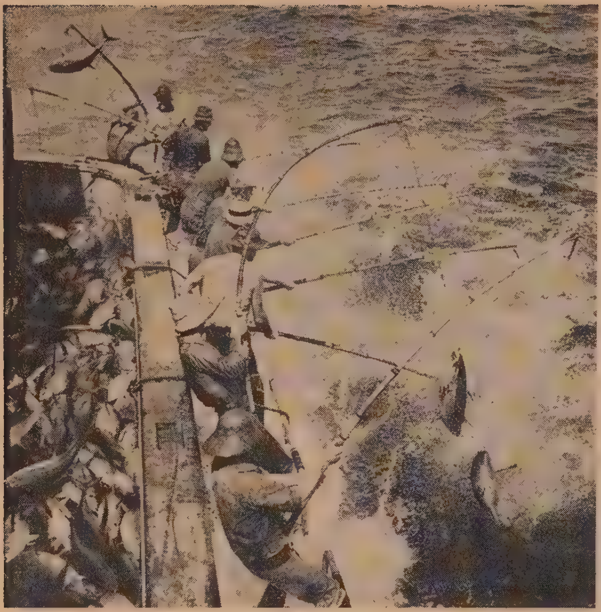
Netting tuna by means of a purse seine follows the essentials of the method described in connection with salmon fishing. A school of tuna is surrounded by a big net, the bottom of which is "pursed" shut by means of a cable running through rings attached to the lower edge of the net. Thus surrounded, the fish are unable to escape from the net, and finally are crowded together and taken aboard the seiner.

Tuna Jig Fishing

This method of fishing is customarily practiced only by rather small vessels—those running from 30 to 60 feet in length—although big clippers use it in scouting for fish.

It is an adaptation of trolling, with the artificial lures, known as "jigs," fished close to the surface. The method is of much greater importance in the Albacore fishery than it is for the other tunas.

The lures are made of various substances and in several types, of bone and plastic, metal, feathers and rubber.



Single-Pole Tuna Fishing

Here is how most of the tuna are taken—a clipper using live bait and working a school of single-pole fish, which can be heaved from the water and swung aboard by one man. When the fish get too large to handle thus, the men team-up and bridle two, three or even four poles to a single hook.

Different Species, Different Methods

Bait fishing is the dominant factor in the production of Yellowfin and Skipjack tuna, although these species are also taken by means of purse seining.

Bluefin tuna are caught almost exclusively by purse seining.

Bait fishing and jigging are the methods employed in catching Albacore tuna. These fish *can* be taken by purse seining, but to date that method has not proven economically successful for Albacore.

Tuna Fishing is Big Business

The operator of a tuna clipper or tuna seiner is really a businessman. A good-sized clipper will run from 120 to 150 feet in length, and may carry as much as 2,000 horsepower in her diesel engines—of which there will be not less than three.

Beside the main engine driving the clipper there are at least two diesel auxiliaries running up to 250 horsepower each to provide power for her refrigeration machinery and pumps.

A clipper of this sort may cost around $400,000. Some have run well above this figure.

Most tuna purse seiners are not so large as the clippers, but they are almost as expensive proportionately, while the nets they use are very large and costly. The largest of these nets known to have been fished cost in excess of $40,000.

Tuna Refrigeration

Question is often raised as to how it is possible for tuna fishing vessels to make long trips, returning to port with full cargoes of several hundred tons of prime tuna after having been at sea for three or four months.

How is it possible to keep fish for several weeks, or even months, without deterioration?

Until the tuna industry worked out the answer to this question it could not attain the stature and volume of production which has marked it in recent years.

Until it was learned how to keep fish in perfect condition aboard the fishing vessel for weeks it was not possible to extend tuna operations to the point where more than 7,000,000 cases a year could be produced.

The old methods of air-chilling were tried early, but it did not prove possible to chill and keep tuna by this means in the volume and at the rate in which the fish may be received when fishing is flush.

Gradually developed over a period of years, a brine-chilling method was worked-out which proved entirely satisfactory; and this opened for the tuna industry the way to greatness.

Brine Chilling Tuna

Very briefly, the process of brine-freezing is this:

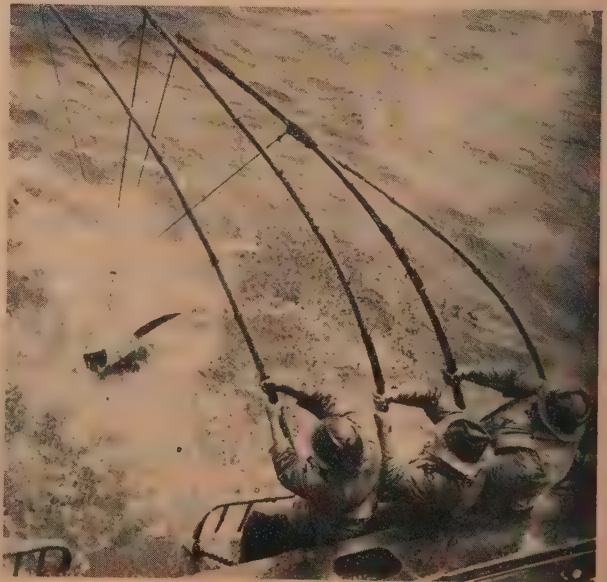
The hold of a tuna clipper is filled with "cargo wells," which are in fact compartments with hatches opening on deck. These wells are lined with refrigeration piping, and are fitted so that brine may be circulated through and through the wells.

Outward-bound to the fishing grounds, the clipper fills at least a portion of the cargo wells with sea-water, to which additional salt is added to permit the temperature to be lowered below the normal freezing point of ocean water. The refrigeration machinery is operated, and the brine in the wells circulated over the coils lining the wells until its temperature is well below freezing.

As soon as the fish are caught they are slipped into one of the brine wells. Circulation of the brine over the frost coils is continued until the tuna are thoroughly frozen by the low-temperature brine. Once the fish are frozen through-and-through, the chilled brine is pumped into another tank and the frost coils take up the task of "holding" the fish frozen in the dry state.

Four-Pole Tuna Fishing

This is bait-fishing for big tuna. When the fish run large, several poles are bridled to a single hook. Here, in a school of big fish, four men work together to handle the great fish, which must be lifted bodily from the water and swung over the rail of the clipper, against which the men are leaning as they strain to the task.



Canned Tuna—Percentages by Species

Annual Average	Albacore Per Cent	Skipjack Per Cent	Yellowfin Per Cent	Bluefin Per Cent	Tonno Per Cent	Bonito Per Cent
1920-24	53.4	13.1	25.9	a	6.5	1.1
1925-29	16.6	25.2	38.4	6.6	10.9	2.3
1930-34	6.8	15.8	56.0	9.1	8.5	3.8
1935-39	9.0	15.3	53.0	10.5	6.7	5.5
1940-44	21.2	17.7	46.2	8.2	3.8	2.9
1945-48	18.2	15.2	54.9	7.0	1.8	2.9

a/Included with Yellowfin.

How Tuna is Canned

Tuna is not dressed aboard the fishing vessel, experience having proven that round fish refrigerate better than those which have been opened.

Upon delivery at the cannery, the tuna are thawed (if they have been frozen aboard the fishing vessel) and are then dressed, but the head is not removed.

Dressed tuna are placed in racks in wheeled trucks, sorted somewhat according to size. They are placed belly down to facilitate draining of oil and moisture drawn from the fish during the pre-cook.

Filled racks are rolled into pre-cookers, where the fish are subjected to a steam cook for a period depending upon size of the fish. Details of this cook are given in an accompanying table.

Upon completion of the pre-cook the racks are withdrawn and are wheeled into a well-ventilated area for cooling. Time required to cool depends upon temperature, humidity and size of fish. It will average about 12 hours.

Tuna Pre-Cooking Data

Species:	Weight	Coming-up Time, Min.	Pre-cook Time at 216°, Hrs.
Skipjack	5-12	20	2-2½
Albacore	10-14	20	3-3½
	15-40	30	4-4½
Yellowfin or Bluefin	8-18	30	2
	18-50	40	3
	50-60	60	4
	60 up	60	5-9

Preparation for Packing

Pre-cooked tuna after cooling are discharged from the baskets at the head of the cleaning line. Here the head is removed and the cooked skin and fins scraped away.

Then the dark meat is scraped from the fish, which is divided along the backbone, and again at the natural division line along the sides, to give four "loins" of firm white or light meat.

NOT FOR TECHNICAL REFERENCE

Data given in this Canned Fish Hand-i-Book on times and temperatures for the sterilizing cooks in canning of fishery products are for general information only, and should not be used as the basis for actual operations.

Persons expecting to engage in canning should consult canning technologists or technical literature for processing times, temperatures and pressures.

Prepared loins pass through a "guillotine" knife, which cuts them crosswise into pieces whose height is suitable for packing in the can.

Women place these pieces in the cans, which then pass through a machine which salts the can, and another which delivers a measured amount of oil, which is delivered gradually to permit it to penetrate thoroughly the contents of the can.

Canned Tuna Process Cook

Can Size:	Coming-up Time, Min.	Process Cook, Minutes 240°F.	250°F.
¼-lb. tuna	10	65	40
½-lb. tuna	10	75	55
1-lb. tuna	10	95	80
4-lb. tuna	10	230	190

Closing the tin follows either exhaust box or vacuum seaming; and the can is then given the process cook in a retort, time and temperature of this cook being shown in a table elsewhere in this booklet.

Some canneries are now utilizing tuna filling machines which take the tuna in the prepared loin stage, cut the loins into lengths, and fill the cans.

Grades of Canned Tuna

"White Meat" may be used as a label designation only on canned Albacore.

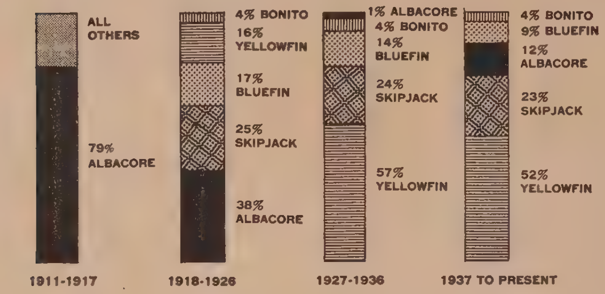
Other species of tuna—Yellowfin, Skipjack and Bluefin—may be labeled "Light Meat Tuna," or simply "Tuna".

Under each of these general classifications based upon color of the canned flesh it is customary to pack several grades, based essentially upon the size of the pieces of fish.

The industry's trade practice rules establish standards as follows:

Fancy—Packed with choice cuts from fish of not over 60 pounds weight, with only large pieces in the can, with one or two small pieces of solid meat added, if necessary, to provide full weight, but with no flakes, grated or shredded tuna added at time of packing. No skin, bones or dark meat may be included.

Standard—Packed with at least 75% of the can contents consisting of large pieces. The balance may be



PERCENTAGE OF EACH KIND OF TUNA IN CATCH DURING DIFFERENT PERIODS OF DEVELOPMENT OF WEST COAST TUNA FISHERY

flakes. Size of fish is not prescribed. No skin, bones nor dark meat may be included.

Grated, Shredded or Flakes—Packed of small pieces of tuna from which bones, skin and extraneous tissue have been excluded.

The Pacific Northwest Albacore canning industry packs a specialized product known as:

Blended Tuna Flakes—This consists of a definite proportion of flakes of White Meat Tuna, blended with flakes of selected dark meat taken from Albacore tuna. Not all of the dark meat in the Albacore is used, careful selection reserving for use only that portion of the dark meat which is definitely muscular in structure. The resulting product is materially darker in general color than other tuna flakes, and at the same time has a somewhat more definite flavor, imparted by the dark meat. The quantity packed is rather limited, and it is taken by a specialized trade.

Tonno—This is a type of canned tuna put up as a specialty item for the Italian-American trade. It consists of solid-pack Skipjack — sometimes Bluefin — packed with twice the usual amount of salt, and in olive oil instead of the customary salad oil.

Tonno is usually packed in quarter-pound tins of the "Kanopen" type.

Canned Tuna—Solid and Flake

Annual Average for:	Percent Solid	Percent Flakes
1925-29	96.3	3.7
1930-34	93.3	6.7
1935-39	91.7	8.3
1940-45	74.9	25.1
1945-48	64.0	36.0

Tuna Can-Filling

Most tuna of the *Fancy* and *Standard* grades is packed in the cans by hand. However, in 1949 tuna filling machines of at least two types were introduced by the industry, and in that year for the first time a considerable quantity of machine-packed tuna was marketed. Opinion among objective observers was that this practice would increase in importance.

Shredded or *Flake* tuna customarily is machine-filled by one of several machines adapted from vegetable canning. These consist of cylindrical pockets which are filled with the small pieces of tuna, and the contents then being pressed into the can by a piston or plunger.

Oil in Canned Tuna

All tuna is canned with the addition of salt and oil, with the exception of a "dietetic" pack discussed later. The oil used is customarily one of the bland "salad oils", commonly cottonseed, corn or soya oil. Olive oil is occasionally used on specialty packs.

The oil has two functions in canned tuna.

First, it replaces in the structure of the tuna the natural oil which has been removed by pre-treatment because of its rather strong, fishy flavor.

Second, to moisten, lubricate and insulate the tuna surfaces in contact with the can—and thus to prevent "scorching" during the process cooking. If oil is not added to tuna before processing, and if it does not have opportunity to moisten all surfaces of the fish, there is danger that some of the fish will stick to the metal of the can and suffer over-cooking, which produces the undesirable flavor known to examiners as "scorching".

The oil added to canned tuna is salad oil of the highest quality. Dieticians advocate using it in recipes in which the tuna is employed because of its intrinsic food value and because it has taken up fine flavors from the tuna.

Salt and Oil in Canned Tuna

Can Size:	Fill-in Weight of Fish, Ounces	Salt Added, Ounces	Salad Oil Added, Ounces
¼-lb. tuna	3½	1/14	¾
½-lb. tuna	5¾	1/7	1½
1-lb. tuna	11½	2/7	2

"Dietetic" Canned Fish

Production of "dietetic" canned fish was pioneered late in 1949 by one tuna packer, who announced a special pack of low-fat, high-protein, low-cholesterol, low-salt tuna for use in special diets designed for weight reduction, protection against certain heart troubles, and high blood pressure.

In this pack the tuna is canned in distilled water without added oil or salt. In addition, it is packed from that species of tuna from which the natural oil can be most fully removed in pre-cooking, and from the leanest portion of the fish.

Fat content of the dietetic pack is reported as 0.75%. Calories are 122 per 100 grams. Protein is given as 28.3%.

U. S. Pack of Canned Tuna

Year:	Cases	Value
Average 1921-1930	1,063,238	$7,371,080
Average 1931-1935	1,668,811	8,646,033
1936	2,680,734	14,715,391
1937	3,144,501	18,995,779
1938	2,754,143	15,183,636
1939	3,642,951	20,079,567
1940	4,188,460	23,727,560
1941	2,931,581	19,397,887
1942	2,484,749	30,742,493
1943	2,696,073	31,430,189
1944	3,560,020	40,836,117
1945	4,531,565	47,407,451
1946	4,784,484	59,135,823
1947	5,894,495	90,609,175
1948	7,037,758	112,612,296

Tuna Imports—Historical

The United States is at once the world's great tuna market and the world's great tuna-producer. As a matter of fact, this country *consumes* a much greater proportion of the world's canned tuna pack than it *produces*.

This condition has prevailed since the early days of the industry. Since the early Twenties, the United States has imported tuna. In that time it came almost exclusively in the form of fish frozen in Japan and shipped to this country for canning. The principal species imported was Albacore.

During the late Twenties the tuna canned from this imported Albacore constituted practically the only stock of White Meat Tuna available in the United States.

In the early Thirties the Japanese began to develop a tuna-canning industry of their own, and the trend of shipments to this country started to swing from frozen fish for canning to that already canned.

Japanese shipments to the United States peaked in 1933 with imports of 600,000 cases, 44.2% of total amount of tuna canned in this country in that year.

This fish was sold at prices below those of the American producers, and brought the domestic business to the brink of disaster. The percentage of imports to the American production declined from the 1933 peak, but remained very considerable until the outbreak of the war in Europe in 1939.

Imports of canned tuna during this period, domestic production, and the percentage of imports to domestic production, are shown in this table:

	U. S. Production in Pounds	*Imports to U. S. in Pounds*	*Percentage of Imports to U.S. Pack*
1933	32,563,000	14,219,000	44.2
1935	54,617,000	8,185,000	15.0
1937	70,304,000	11,053,000	15.7
1938	60,296,000	7,192,000	11.9
1939	82,009,000	10,126,000	12.3

Tuna Imports—Current

During the war, and particularly since, there has been a gradual increase in the imports of tuna to the United States—both frozen for canning, and already canned.

A substantial industry has developed in South America, notably in Peru, and there are signs of growth in Ecuador as well. Japan has resumed canning tuna, and moderate imports of canned fish have been received from there; while shipment of frozen Albacore from Japan was resumed in 1948 and has been growing since.

Africa has been coming to the fore as a canner of tuna and material shipments from Algiers, Morocco and Angola have been reaching the United States market.

Statistically, there has also been a sharp increase of imported frozen tuna from Central America. This fish largely was caught by American vessels and landed in Central America for storage in shore freezing plants and subsequent shipment to the United States aboard intercoastal carriers.

Tariff on Tuna

The tariff on canned tuna was fixed at 30% by the tariff act of 1922.

HOW STATES RANK In U. S. Fish Canning

Rank—State:	Number of Plants	Value of Products
1—California	67	$137,876,592
2.—Alaska	131	97,657,187
3.—Maine	56	33,379,034
4.—Oregon	23	21,926,969
5.—Washington	68	18,497,700
6.—Louisiana	39	7,908,125
7.—Massachusetts	17	6,098,812
8.—New Jersey	2	4,205,768
9.—Mississippi	18	2,265,708
10.—Maryland	12	1,376,724
11.—Pennsylvania*	8	1,275,693
12.—New York	12	912.681
13.—South Carolina	4	819,807
14.—Virginia	14	523,249
15.—Alabama*	4	463,318
16.—Rhode Island, New Hampshire and Ohio	3	423,786
17.—Minn., Wisc., Mich. and Mo.	3	409,632
18.—Georgia*	2	338,086
19.—North Carolina	12	315,863
	489	$336,181,479

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*Canned and by-products were combined in these states.

Note—These figures are for 1948.

This was increased to 45% ad valorem, effective Jan. 1, 1934, by presidential order when the staggering imports mentioned above threatened in 1933 to destroy the domestic industry.

In 1943 the terms of the reciprocal trade agreement with Mexico reduced the tariff on canned tuna to 22½%, and this rate continues at time of writing.

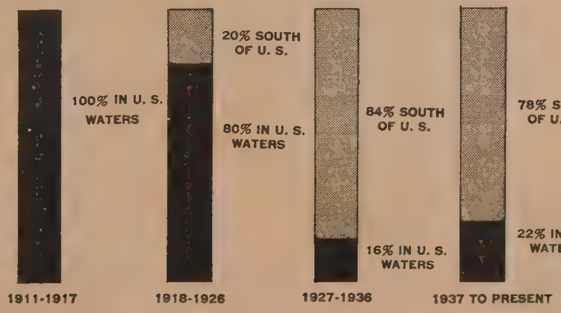
There is no tariff on imports of tuna in fresh or frozen condition.

"Chunk Style" Tuna Pack

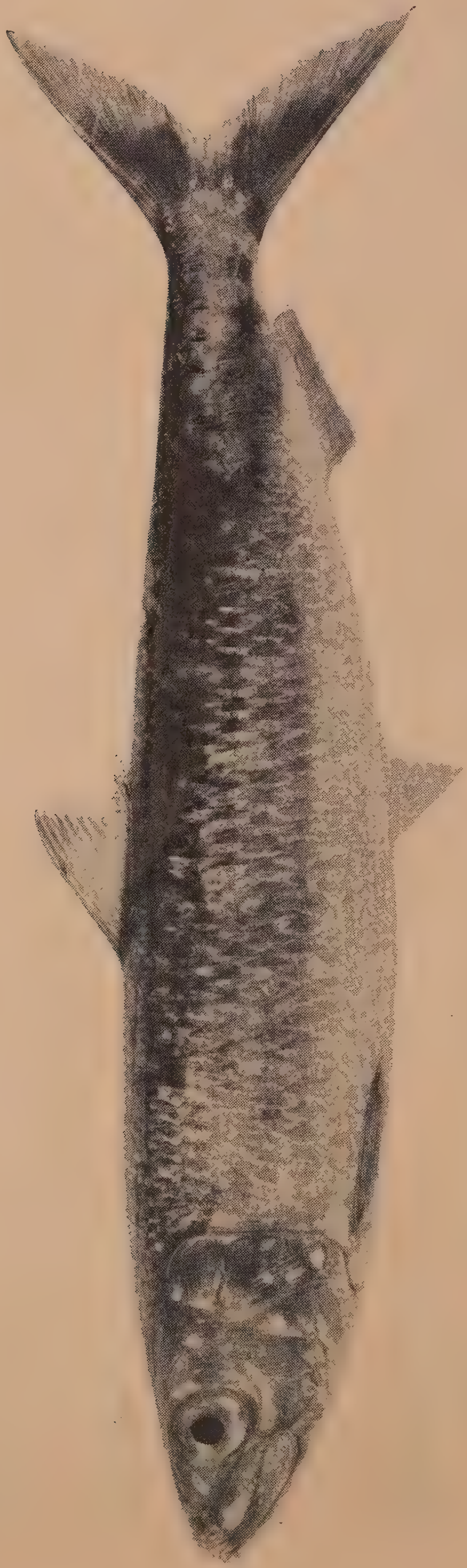
Introduced on a considerable scale in 1949, this new-type of tuna pack attained instant consumer acceptance. The result was that a substantial percentage of the Light Meat tuna pack was put-up in this style in 1949.

The "chunk style" pack is prepared by cutting the loins of tuna, small fish customarily being used, into small chunks or "bite-size" pieces. These are filled into the cans without crushing. The product reaching the consumer is already cut into small pieces for use, but is not so mascerated as flakes, grated or shredded tuna.

PROPORTION OF WEST COAST TUNA CATCH TAKEN OFF U. S. COAST AND SOUTH OF THE U. S. DURING DEVELOPMENT OF TUNA FISHERY



CANNED SARDINES



SARDINE or PILCHARD

This is Sardinops caerulea, more commonly known as the California Sardine, and perhaps even more properly as the Pacific Pilchard. It is the most abundant of all American fishes and is caught commercially from Mexico to Canada.

Just What are Sardines?

Although it may sound like hearsay to say so, *there is no such fish as a sardine.*

The term "sardine" refers to a type of fish and method of packing, rather than to a species. Several distinct kinds of fish are canned as sardines, and all are properly and legally so-called.

For example, Norwegian sardines are either small herring, called "sild"; or are brisling, a similar but distinct variety of fish.

French and Portuguese sardines are canned from pilchards.

In the United States sardines are canned in Maine, where small herring are used in the pack; and in California where pilchards are employed.

United States legal requirements provide that any small fish of the herring family may be canned as sardines, but the name of the country or state where packed should be included on the label.

In addition, sardines are usually, although not always, subjected to a precook which serves to remove some of the natural moisture and oil; and then are canned with the addition of oil or a sauce, such as tomato.

Counter to this broad rule, however, are the tall cans of California sardines in either 6-oz. or 1-lb. sizes, in which an increasing proportion of the pack has been put up in recent years.

How Sardines are Caught

California sardines are caught almost entirely by means of purse seines (described elsewhere in this booklet under the general discussion of gear) or one of several lesser nets from which the purse seine evolved some years ago. These minor types of gear are known as lampara or half-ring nets and are closely related to the purse seine, in that they take the fish by encirclement, with the net manipulated in such a way as to prevent escape of the fish through the bottom.

An interesting aspect of the California sardine fishery is that virtually all fishing is done at night, and that operations are suspended during the period of the full moon each month.

The reason for this is that the phosphorescent glow created by the school of sardines in the dark water reveals the presence of the fish to the lookout in the crowsnest of the vessel.

Of recent seasons there has been a slight trend away from this night fishing as the seiners have learned to use their echo-sounders to detect the fish. Suspension of fishing during the full-moon period remains the rule, however; because men must rest and nets must be repaired.

Where Sardines are Caught

The enormous majority of California sardines are caught in two relatively compact areas—centering on

Los Angeles Harbor and the Monterey-San Francisco region.

The fish are found comparatively close to shore, and are taken in the course of one-night trips, always being landed within a few hours of catching.

The spawning area of the California sardine is down the coast of Mexico, beyond the southern limits of the fishery. The fish tend to follow the coast northward farther and farther in an annual migrating.

While some sardines are canned in Mexico, and a few as far north as Grays Harbor, Wash., and the Columbia River, the aggregate of this outside-California production is nominal.

When Sardines are Canned

The California sardine fishing season opens August 1 in the Monterey and San Francisco districts; and October 1 in Southern California.

Fishing continues, with monthly suspensions for the full-moon periods until about the end of January, when operations are generally suspended as result of falling-off of the volume and quality of the fish. Canning is usually finished for the season a short time before the end of the legal season.

What little sardine canning is done in Oregon and Washington normally falls in July and August.

America's Largest Fishery

The California sardine is America's most abundant fish.

It is possible to say this on the basis of the record, despite the fact that in 1946, 1947 and 1948 the California sardine lost first place in the volume race to the Atlantic menhaden. This was due to a temporary decline in the abundance of the California pilchard or sardine, a decline whose cause is obscure, and which is apparently being reversed by substantial recovery in the catch.

In "normal" years, before the sardines of California suffered sharp decline, this species accounted for approximately one-fourth of all the fish taken by American fishermen.

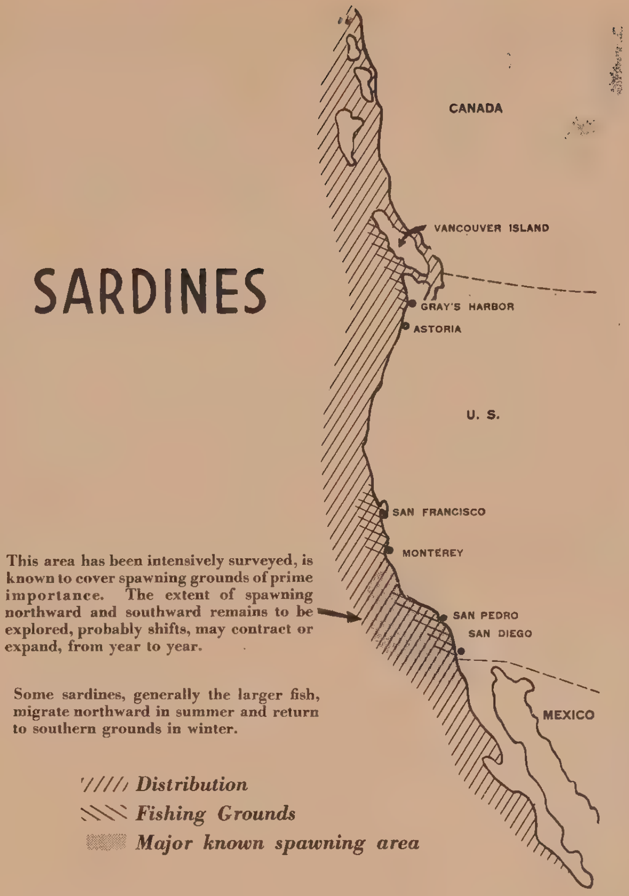
Although the California sardine fishery is the largest, the value of the products as prepared for market customarily falls below that of salmon and tuna.

California Sardine Processing

Methods of canning California sardines have undergone broad changes with the years, but appear to have "jelled" recently into several well-established practices.

U. S. Pack of Canned Sardines

	New England		California and Oregon	
YEAR:	Cases	Value	Cases	Value
Average 1921-1930	1,677,265	$6,031,760	1,953,474	$6,961,598
Average 1931-1935	1,042,116	2,974,505	1,719,387	4,519,462
1936	1,845,860	5,740,454	2,616,530	7,302,273
1937	1,680,241	4,998,373	2,812,456	8,592,117
1938	671,635	2,367,045	2,261,678	7,102,358
1939	2,210,466	7,075,096	3,108,082	9,553,663
1940	1,117,748	3,736 394	2,945,882	8,975,257
1941	3.131,276	12,475,991	5,007,154	18,091,873
1942	2,720,126	11,691 981	3,744,624	15,509,964
1943	2,353,273	10,686,471	3,354,697	14,352,359
1944	3,035,825	14,223,706	3,650,919	15,225,919
1945	2,513,751	11,520,387	3,765,981	15,346,472
1946	3,018,597	19,548,531	2,977,170	19,895.619
1947	2,834,690	27,677,704	1,652,592	16,538,375
1948	3.060,842	26,921,926	2,654,149	21,892.893



SARDINES

This area has been intensively surveyed, is known to cover spawning grounds of prime importance. The extent of spawning northward and southward remains to be explored, probably shifts, may contract or expand, from year to year.

Some sardines, generally the larger fish, migrate northward in summer and return to southern grounds in winter.

///// *Distribution*

\\\\\\ *Fishing Grounds*

▨ *Major known spawning area*

Newest of the developments in processing sardines has been the introduction of brine refrigeration as a means of holding a reserve of ready-to-pack sardines from one day over until the early part of the next day. These fish are kept just above freezing in tanks of low-temperature brine to maintain them in prime condition.

The refrigeration system also serves to smooth the peaks and valleys of sardine deliveries.

As they reach the cannery, sardines are put through "cutting" machines as quickly as possible. In general, these machines consist of conveyor chains fitted with "pockets" in which the fish are placed by hand, all heads one way. As the sardines move along knives remove the head and tail, cutting the fish to exact length for best filling of the type of can being packed at the moment. The end of the fish from which the head has been removed is then carried past a suction opening. All viscera is drawn from the body cavity by the powerful suction, thus cleaning the fish effectively.

Following washing, the fish may be held overnight in the brine referred to above; or may go on to the can fillers for immediate canning.

Methods of Sardine Packing

The great majority of California sardines are packed either in 1-lb. oval cans or in tall round cans, either 6-oz. or 1-lb. size.

Ovals cans are all filled by hand; and the round cans often are, although in recent years machines for filling the round cans have come into increasing use.

In California most sardines are subject to a pre-cook

Sardine Seining

This view, taken from a blimp whose shadow shows in the lower left corner, reveals plainly how a purse seiner drops its skiff, attached to the tail end of the net, and then describes a circle around a school of fish. The net hangs as a vertical curtain in the water until pursed by drawing-in a line running through rings on its lower edge, effectively closing all avenue of escape.

of some type before the can is closed. Although a number of types of cooking still have their place in the pack, the commonest today involves steaming the fish in open cans for a period of from 30 to 45 minutes at a temperature of 210°.

The cans are then drained of moisture and the oil, and usually a sauce is added to the hot fish before the can is closed and sealed. Sardines in round cans often are packed "natural."

Tomato sauce is the most popular, although some sardine packs are put up with mustard sauce or other specialty sauces.

Salt is added in the sauce, or in the form of brine in the "natural" packs in round tins.

Some California sardines are pre-cooked by "broiling" as they move on conveyor chains through ovens heated by gas flames. Temperature in the ovens ranges from 320 at the start to about 350° at the finish of the 45-minute cooking period.

California Sardine Processes

CAN SIZE:	Initial Temperature	Process Time in Minutes at 230°F.	240°F.	250°F.
6-oz. tall	70	100	55	40
6-oz. tall	150	95	50	30
1-lb. tall	70	125	90	75
1-lb. tall	150	100	75	60
No. 10	150	......	240	210
½-lb. oval	70	110	55	40
½-lb. oval	150	100	50	30
1-lb. oval	70	130	75	55
1-lb. oval	150	115	65	50

Convex Cans

Cans with convex ends—known in the trade as "swells", "puffs", "springers" or "flippers"—are normally regarded as evidence of spoilage after processing. This may be due to inadequate cooking; to imperfectly sealed, leaky or perforated cans, or to chemical action between contents and container.

Some degree of convexity may result from inadequate vacuum or overfilling. Such slightly convex cans —which, when pressed in, remain of normal shape and are usually known as "springers"—though sometimes spoiled, may be merely lacking in vacuum. Cans that are really distended, known as "hard swells", are definitely spoiled; and cans showing *any degree* of convexity though sometimes found in sound and wholesome products, are always under suspicion and should never be offered for sale unless found safe by scientific examination.

In many instances cans with little vacuum, of normal appearance in the cool and dense atmosphere of sea-level, have become "springers" or even "swells" when shipped to points of high altitude or high temperature, or both; but when returned to sea level resumed their normal appearance, and showed no spoilage on chemical-bacteriological examination. Similar difficulty has occurred in shipments from canneries in the temperate zone to the tropics.

Owing to mechanical imperfections, some convex cans may occur in any pack. Because of this, the trade custom has arisen of granting to buyers a percentage of the packer's price as "swell allowance". With improved techniques, however, the occurrence of "swells" in the major canned fish packs has gradually diminished, with reduction of the "swell allowance" from time to time. In recent years they have been almost entirely eliminated from the canned salmon and tuna output, and the allowance, after standing for some time at one-half of 1 per cent, was cut some years ago to one-tenth of 1 per cent.

Thawing and Storage

When the brine-frozen tuna are delivered at the cannery they may be thawed and canned immediately, or held frozen until needed in the packing plant.

Thawing is usually accomplished by holding the fish at air temperature for a day or more, or may be accelerated by placing them in tanks of cool water.

Due to peculiar characteristics of the tuna, the product packed from frozen tuna is virtually indistinguishable from that for which unfrozen fish was used.

Pacific Mackerel (*Pneumatophorus diego*)—Main source of canned mackerel.

MACKEREL

Pacific Mackerel Dominates In Quantity and Canned Pack

The New Englander often is under the impression that the North Atlantic is the principal American source of mackerel. Actually, the Pacific mackerel catch averages greater than that of all the rest of the United States combined—and it is made entirely off the California coast.

The Atlantic and Pacific mackerels are not identical in character—just as the Pacific and the Atlantic salmon differ.

As a source of canned fish, the dominance of the Pacific mackerel is particularly notable. During the years 1946-48, inclusive, California packed 80.5% of the canned mackerel produced in the United States.

Mackerel is generally packed in 1-lb. tall cans merely with the addition of salt for seasoning, and is a relatively low-priced high-protein food.

Some specialty packs of mackerel, often in the form of skinned fillets, and sometimes packed "tuna style," are put up in oblong or flat round cans.

In point of volume, canned mackerel usually stands in fourth place among American canned fish products—behind salmon, tuna and sardines.

Function of Vacuum

Vacuum in canned fish has several definite functions. It keeps the ends of the cans concave, which is a good index of the condition of the contents. Although convex or bulged ends are not necessarily the result of spoilage in the can, they well *may* be. Collapsed or concave ends on a can are evidence that there is no condition in the can generating pressure.

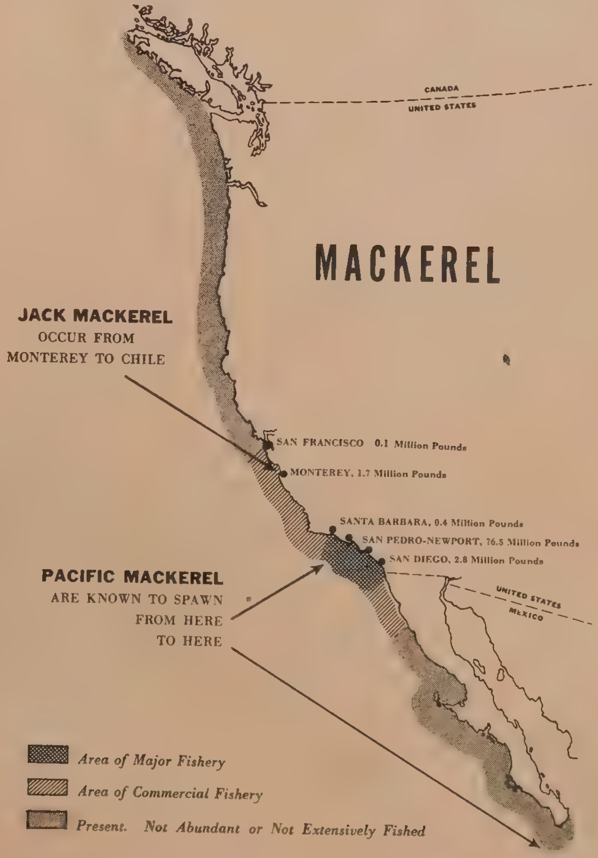
Vacuum in the can serves also to prevent unnecessary strain on the can during processing; and a third function is its effect in reduction of chemical activity in the can by reduction of the oxygen content in the headspace.

Vacuum is established in the can either by heating immediately prior to sealing the can—which serves to drive out entrapped air, and to produce a vacuum when the contents shrink upon cooling; by exhausting the air by means of mechanical pumping; or by means of a steam blast at the moment of closing.

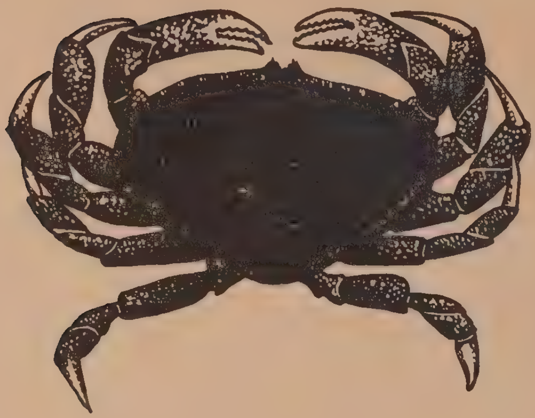
Adequate vacuum is particularly important in the case of canned fish which is to be shipped to or through the tropics or high altitudes. Where vacuum is inadequate, such conditions may produce bulged ends which may not return to normal condition later.

U. S. Pack of Canned Mackerel

Year:	Cases	Value
Average 1926-1930	229,293	$979,927
Average 1931-1935	806,664	2,117.791
1936	1,236 850	3,542,895
1937	840,832	2,673,608
1938	965,629	2,896,220
1939	889,389	2,588,695
1940	1,421,894	4,101,369
1941	935,001	3,503,718
1942	721,189	3,693,082
1943	937,251	5,271,203
1944	1,225,060	7,033,997
1945	692.748	4,046,691
1946	962 150	7,575,291
1947	1,754,950	15,018.633
1948	1,281,192	9,850,834


MACKEREL
CANADA
UNITED STATES
JACK MACKEREL
OCCUR FROM
MONTEREY TO CHILE
SAN FRANCISCO 0.1 Million Pounds
MONTEREY, 1.7 Million Pounds
SANTA BARBARA, 0.4 Million Pounds
SAN PEDRO-NEWPORT, 76.5 Million Pounds
SAN DIEGO, 2.8 Million Pounds
PACIFIC MACKEREL
ARE KNOWN TO SPAWN
FROM HERE
TO HERE
UNITED STATES
MEXICO
Area of Major Fishery
Area of Commercial Fishery
Present. Not Abundant or Not Extensively Fished

Dungeness Crab



Three Kinds of Crab

The American production of canned crab—and indeed virtually all of the canned crab reaching the American market—is composed of three distinct species of crab. These are:

Pacific or Dungeness crab: Taken along the entire Pacific Coast from San Francisco north to Kodiak Island, Alaska. This species yields the very great majority of the United States canned crab pack.

King Crab: A very large crab, taken in northern waters from Kodiak Island west along the Alaska Peninsula, including waters of the Aleutian Islands and the Bering Sea, as well as those of the Siberian coast on both sides of the Kamchatka Peninsula. This crab yields the principal imported canned crab, and has been canned to some extent in Alaskan waters.

Blue Crab: This is the smallest of the crabs used for canning, and is confined to the Atlantic and Gulf Coasts. Although the major part of the production is sold fresh or frozen, a few thousand cases of canned crab are produced from this species annually.

Dungeness or Pacific Crab

This species, scientifically *Cancer magister*, is the principal commercial crab of the Pacific Coast. It takes its frequently-used name "Dungeness" from a small fishing village on the Strait of Juan de Fuca, where crab fishing was formerly of importance.

Centers of the fishery for the Pacific crab are: San Francisco and Eureka, Calif.; Coos Bay, Yaquina Bay and the Columbia River, Oregon; Grays Harbor and Puget Sound, Wash.; Queen Charlotte Islands, B. C.; Southeast Alaska and Cordova, Alaska.

Crab canning is important in all of these centers save San Francisco, where the entire production is taken by the fresh market.

Crab canning usually starts about the first of the year, although occasionally a little packing may be started as early as mid-November.

Dependent upon weather, peak of production comes in April or May, and canning is usually over by June, when the crabs "go into moult." That is, they cast off their old shells and grow new ones. During this period they are rarely caught, and are light and in poor condition.

Only the male crabs are retained by the fishermen, females by law being returned to the water unharmed. This is possible because of the means by which they are caught.

Most Pacific crabs are taken in "pots," either flat, cylindrical or rectangular wire mesh covered metal frames with tunnel entrances. Attracted by the bait, the crabs crawl into the tunnels and fall to the bottom of the pots.

Some crabs are caught by means of "ring nets," which are hoops, supporting a bag of netting from which the crabs cannot escape in time as the net is drawn rapidly to the surface.

Most crab fishing is done at sea, beyond territorial waters, although during some seasons fishing centers inside bays and sounds.

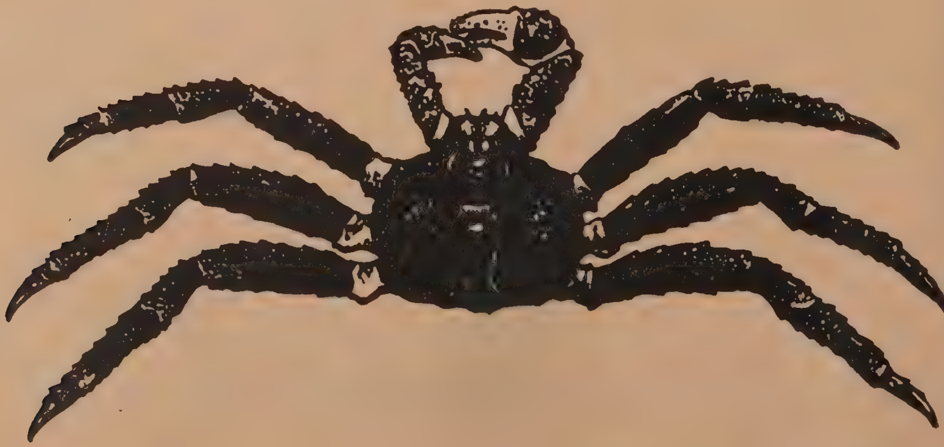
How Crabs are Canned

Legal size limits restrict commercial crabs to those measuring from 6 to 6½" across the shell. Significantly, crabs grow very slowly after reaching this size.

Pacific crabs are always kept alive until they are prepared for canning. They will live for a considerable period out of the water, and upon delivery by the fishing vessel are placed in live boxes at the cannery until required.

Crabs for canning are killed and dressed, and the legs

King Crab



U. S. Canned Crab Supply

(All figures in 1,000 lbs., i.e., 000 omitted)

YEAR:	U. S. Production	Japanese Imports	Russian Imports
1931	37	9,361	1,943
1933	445	6,943	2,577
1935	350	8,783	1,979
1937	657	8,103	2,850
1938	658	5,974	1,817
1939	640	10,719	2,750
1943	1,469	....	....
1946	3,882	....	....
1947	2,726	377	....
1948	4,305	*	*

*Data not available.

and body-meat sections—sometimes called "shoulders"—are given a preliminary cook in boiling water for a period of 20 minutes. This serves to firm the meat so it can be removed from the shell.

"Shakers," generally women, use small mallets or hardwood billets to break the shell from ends of the leg or "shoulder" sections containing the meat. These sections are then shaken, or rapped sharply on the edge of the box or pan provided for handling the crabmeat. Leg meat and body meat is customarily separated at this point by shaking into different containers.

The pans or boxes in which the crab meat is handled at this point—and all utensils or surfaces it subsequently touches—are customarily of stainless steel or Monel. These alloys are used to prevent contamination, eliminate corrosion, and to provide easily-sterilized equipment.

The Crab-Packing Process

After removal from the shell, the crab meat is carefully inspected to detect shell fragments, which may also be removed by a brine-flotation process.

After being freed of shell fragments, the crabmeat is dipped for a period of about one minute in a dilute solution of an edible acid, usually citric, although other food acids such as lactic or acetic are sometimes used. This serves to prevent color changes in the crabmeat after canning. Before the process of acidulation was adopted, crab sometimes took on gray or bluish coloration in the tin. After the required time for color-fixing by acidulation, the crabmeat is thoroughly washed to remove acid. General practice is to dip the washed meat in salt brine for a few minutes for seasoning, although some packers add about ¼-oz. per half-lb. can, omitting the brine seasoning.

Crab cans are always lined with "C-enamel," seafood formula, and in most cases this is supplemented by a vegetable parchment liner, further to protect the crabmeat from any contact with metal.

U. S. Pack of Canned Crab

YEAR:	Cases	Value
Average 1926-1930	2,870	$53,908
Average 1931-1935	13,548	109,235
1936	14,600	130,753
1937	27,394	269,699
1938	27,398	260,134
1939	32,828	259,756
1940	38,740	308,890
1941	60,198	547,617
1942	114,548	1.755,065
1943	75,308	1,194,483
1944	86,942	1,361,458
1945	55,514	883,767
1946	199,078	4,720,119
1947	139,816	2,705,391
1948	220,802	4,846,494

Crab Fishing

A Pacific Coast crab fisherman, working well at sea beyond the three-mile limit, leans over the rail to swing aboard a crab pot raised by power from the bottom of the sea. The frame of the pot is of iron rods, wrapped with rubber strips to stop electrolytic action set-up by the copper wire making up the webbing.

Crab Canning Data

CAN SIZE:	Net Weight, Ounces	Standard Process Cook Minutes	Standard Process Cook Degrees
Half-flat	6.5	90	221
Pound Flat	13.0	80	228
No. 2	17.0	80	228

Crab packs range from all leg meat to all body meat, with the great majority of the production consisting of a standard pack in which a layer of leg meat is placed in the bottom of the can, then body meat, and the fill topped-off with legs.

Filled cans are customarily sealed under vacuum and then given the process cook.

Facts About King Crab

The King crabs—there actually are three closely related species—have furnished by far the greater part of the world's canned crab supply in the past. Prior to World War II these King crab canned in Asiatic waters by the Japanese and Russians constituted ap-

Clam Digging

Clam digging is a branch of the seafood business which has defied mechanization. The shovel or the rake is still the tool with which clams are taken. Here commercial diggers are taking razor clams from the firm sand beaches of the ocean coast of Washington. This species is taken only in the ocean surf, and only along the coast of North America from Oregon to the Aleutian Islands.

proximately 90% of the canned crab supply available in the American markets.

The King crabs are found along the Asiatic side of the Pacific from the Japanese islands north to Bering Sea, and particularly along the coasts of Kamchatka.

The Japanese, scouting Alaskan waters in the early '30s, found that the King crabs also abounded on the American side of the Bering Sea, along the Aleutian Chain, and the Alaska Peninsula. Exploration has also shown them fairly abundant as far eastward as Kodiak Island; and a few are found in Southeast Alaska.

This crab differs from other species used for food in that the length and size of legs is disproportionate to that of the body. The ratio of leg meat to body meat is much greater, and the meat is pure white, marked with bright red coloration.

King crabs in American operations are taken in large degree by means of trawling. Other methods sometimes used involve tangle nets and traps.

The canning operation does not differ in material degree from that already described in connection with Pacific crabs. During the year 1948 a substantial pack of canned King crab was put up in Alaskan waters by the exploratory factory ship *Pacific Explorer*, operating under a federal research program.

Result of this operation was to cast doubt upon the economic practicability of factory ship operation for King crabs under American costs and working conditions. Comprehensive shore plant operation has not yet been undertaken in American territory.

Exploitation of the American resource of King crab has been going on steadily for some years, but is based essentially on the frozen product, rather than upon canning.

The import duty on canned crab meat is 22½% ad valorem, a rate set by presidential proclamation in 1941. Prior to that time the rate was 15%.

Various Canned Clams

American clam canning centers largely on the Atlantic Coast, with Maine and Maryland as the principal centers. Maine specializes in the packing of "soft clams," and Maryland in "hardshell" clams.

On the Pacific Coast the "razor" clam is the dominant variety—although some hardshell clams are also canned.

"Razor" clams are found nowhere in the world except along the Pacific Coast from Oregon to the Aleutian Islands, wherever there are extensive sand beaches exposed to the ocean surf.

Canning of this distinct variety of clams is confined to the Columbia River region in Oregon; the Grays Harbor and Willapa Harbor areas of Washington; the Queen Charlotte Islands of British Columbia; the Copper River, Kodiak Island and Cook Inlet districts of Alaska.

The razor clam is large in size, bland in flavor, and characterized by the whiteness of its flesh. The clam is carefully dressed before canning, and is usually packed minced.

Because of the relatively small quantity canned annually—both the Washington and Alaska packs being limited by legal quotas—distribution of razor clams is largely confined to the Pacific Coast market, where the product is best known and best regarded.

"Reconditioning"

This is a subject sometimes regarded as "touchy"—and one concerning which there is common misunderstanding and misinformation.

This brief discussion seeks to dispel this fog of misconception in simple language.

When the salability of a parcel of canned fish is questioned for any reason—and there may be a number of factors which would bring it into question—it is reserved from shipment and made subject to re-examination.

This situation may arise from a number of causes—usually a question as to the soundness of the cans or the fish they contain. The most famous case of reconditioning on record was that of the salmon cargo carried by the motorship *Diamond Knot* when she was sunk near Seattle. The salmon was recovered after being submerged in salt water for some time and it was feared that this might have impaired the cans.

Accordingly, the salmon was ordered "reconditioned."

The process of "reconditioning" is this: The cans of fish are passed through a steam box and thoroughly heated. They are then rolled over a sharp point, which punctures the side of the can. Some of the hot liquid is shaken out of the can onto a clean can lid, and this, with the can, is passed to the expert examiner, who is a specialist of long training, acceptable to the Food and Drug Administration.

He smells the liquid and passes or rejects the can on this "organoleptic test." Remember, he is specially qualified for the task, and the heating accentuates the odors, good and bad.

Rejected cans are destroyed. Those accepted are resealed by soldering, and are then given a full process cook, just exactly as in the original canning.

Reconditioning is always done under the supervision of the Food and Drug Administration—and such salmon is the only kind which is actually canned under Federal inspection. Furthermore, after a parcel of canned fish has been reconditioned, it is always re-examined, and the sampling and examination is even more critical than that to which it was originally subjected.

Reconditioning is usually deferred until a slack period, and fish which has passed through this process is not often available until after most of the pack has been prepared with shipment.

Any fish which has been reconditioned must be so-labeled. The second cooking may alter the characteristics of the canned fish to some extent, but does not destroy its food value nor seriously impair its salability.

Pacific Oysters are Different

Canned oysters packed on the Pacific are fundamentally different from those produced on the Atlantic and Gulf coasts because the Pacific oysters are a distinct species—originally imported from the Orient.

Pacific oysters grow much more rapidly, and to much larger size, than do Eastern oysters. Pacific oyster canning practice also varies sharply, and the canned product is very different in size of oyster, color, texture and flavor.

At the end of 1949 the Pacific oyster industry was faced with dilemma as result of the U. S. Supreme Court upholding a Food and Drug Administration ruling that standards for all canned oysters must be identical, regardless of fundamental variations in the product resulting from differences in species and traditional packing method.

This decision is expected to impose a severe handicap upon Pacific oyster canners, and perhaps to encourage them in the development—already well started—of such specialty products as canned smoked oysters and canned oyster stew.

U. S. Pack of Canned Oysters

YEAR:	Cases	Value
Average 1921-1930	520,205	$2,524,660
Average 1931-1935	417,985	1,392,686
1936	562,636	2,180,869
1937	739,353	2,932,681
1938	500,523	1,886,476
1939	648,569	2,378,945
1940	690,585	2,526,859
1941	657,045	2,997,114
1942	523,262	3,598,703
1943	345,868	2,821,556
1944	273,556	2,283,429
1945	225,964	2,029,953
1946	390,835	5,249,272
1947	410,487	4,259,485
1948	357,080	4,777,531

"Standards" in Canned Fish

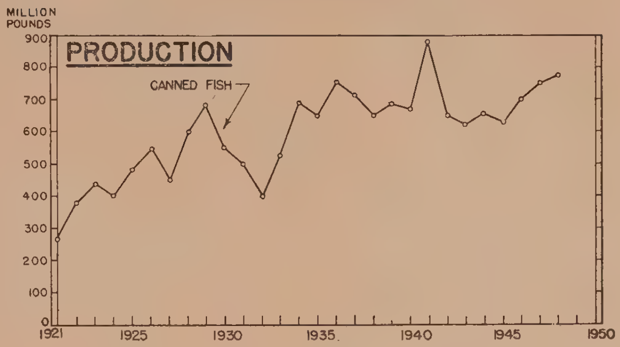
Policy of the Food and Drug Administration as this is written calls for gradual progress toward promulgating official federal standards for the several canned fish and seafoods.

Standards for canned oysters already have been adopted, and the Administration and the Industry are engaged in seeking a sound basis for standards for canned tuna.

Notice has been served by the Food and Drug Administration that it intended to move similarly toward standards for canned salmon as soon as the tuna program has been completed.

Such federal standards may be expected to include standards of identity, standards of fill of container, and standards of quality.

The Curve of Fish Canning



Care in Handling Samples

With a very few exceptions, the structure of canned fish and seafoods can be damaged by rough treatment in shipping. This is particularly true where samples are shipped by parcel post, or in prolonged shipments by truck.

Samples may suffer sharp de-grade if they are roughly handled a short time before opening. While such adverse effects can be overcome to some extent by permitting the cans to rest for a time, marked structural damage to the canned fish may result.

Such damage can be particularly serious in the case of very fat fish, or of fish in which there is a good deal of moisture in the can, as in shad or mackerel.

Vitamins in Canned Fish

Canned fish generally are excellent sources of vitamins, particularly the rarer nutritional factors.

Vitamin A is perhaps the most important of the vitamins found in fish, but as it generally is concentrated in the liver oils or those occurring elsewhere in the viscera, no great amount is found in canned fish generally. Canned fish roe, on the other hand, is regarded as a good source of this vitamin.

Vitamin B_1, which protects against beri-beri, is found abundantly in oysters and in canned fish roe.

Vitamin D protects against rickets, and was the first of the vitamins to be found in fish. It was this factor which was sought in cod-liver oil long before vitamins were recognized and designated. The body oils of a number of the fishes canned supply Vitamin D, the number including salmon, sardines and herring.

The oil from some species of canned salmon has been found to have as good Vitamin D potency as the best cod-liver oil. Scientists have reported that the oil from canned salmon consumed in the United States each year contains more Vitamin D than all of the cod-liver oil taken in the country in a similar period.

Pellagra is another nutritional disease which is prevented by the vitamins present in canned fish, notably salmon, clams, crab and oysters.

Other Nutritional Factors

In addition to the several vitamins known to occur in canned fish, there are several other factors essential in human nutrition which are found there in substantial quantities.

Iodine is a case in point. This element, with its

Canadian Fish Consumption

(Given in pounds per capita)

Style:	1948	1947	1946	1945
Canned	4.8	4.2	3.1	1.7
Fresh and Frozen:				
Sea fish	2.4	2.8	3.0	3.2
Fillets	2.0	1.7	2.7	2.0
Freshwater fish	0.7	0.7	0.8	1.0
Shellfish	0.3	0.2	0.3	0.3
Cured:				
Smoked	0.8	0.7	0.7	0.7
In brine	0.4	0.4	0.5	0.5
Dry salt	0.8	0.8	0.8	0.5
Total	12.2	11.5	11.9	9.9

controlling effect on goiter, is associated with most seafoods.

The proteins of canned fish are particularly notable sources of the essential amino acids. The protein of fish can be substituted weight-for-weight for that of meat or dairy products to good advantage.

Nutritionists point out that a substantial portion of the minerals in protein foods are contained in the bony structures of the animals—and that in the case of canned fish the bones are reduced by the heat of the process cook until they are entirely edible.

What are "Collapsed Cans"?

"Collapsed cans" are peculiar to the Alaska canned salmon business—although they are used to a nominal extent elsewhere—and were developed to reduce the heavy cost of making cans in Alaska, or of shipping empty ones to the North.

Prior to development of the "collapsed can," most Alaska packers maintained actual can factories at their canneries. To maintain and operate such a plant in Alaska was very expensive.

This resulted in development of the collapsed cans, which are actually a normal can body, flattened before the ends are flanged and the bottom applied. The formed cylinder is flattened and packed in cases, five "collapsed" cans occupying about the same space as one made-up can.

At the cannery the flattened can bodies are run through a machine which reforms them, and another which flanges the ends of the cylinder. Finally, the bottom is applied and seamed onto the can before it is tested, filled and closed.

It is true that the use of collapsed cans still requires a good deal of manufacturing at the cannery, but the amount is greatly reduced and the machines in the reforming line are high-speed and largely automatic in operation.

Codes and their Function

Packers of seafoods generally identify their products with code marks embossed in the can lids at time of closure. These code marks may be simple, or quite elaborate, depending upon the complexity of the packer's organization or his desire for full identification.

Codes normally show the cannery, the year of packing, the day of that packing year, and the species of fish.

In addition, they may give such further details as the line on which the fish was packed, the shift of the particular day of packing, the lot of fish involved, and perhaps the source of the fish—such as gillnet or seine or trap.

Code markings stencilled on the cases are somewhat simpler, but usually show the cannery, species, date and year of packing.

Code-marking of cans and cases facilitates segregation of any lot of salmon which may be called into question in inspection; and reduces the likelihood of accidentally mixing of the several species prior to labeling.

What is "Jack" Mackerel?

One of the most important Pacific canned fish in point of volume is "Jack Mackerel," a similar but distinct fish from Pacific mackerel.

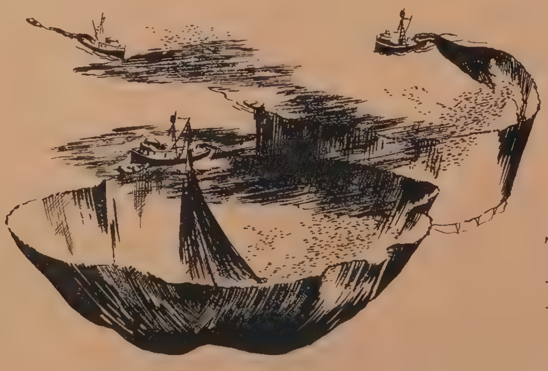
This fish has been canned under a variety of names, but the term "Jack" mackerel has finally been accepted for it officially. Canning is confined to California, where the fish occurs in substantial quantities, often in association with the Pacific mackerel. Although the two fish are very similar in appearance, both fresh and in the can, they are carefully segregated in the canneries and in labeling.

The scientific name of the Jack mackerel is Trachurus symmetricus; and the catch is made primarily by means of purse seines.

Headspace and its Function

The distance between the top of the contents of a can of fish or seafood and the underside of the can lid, measured in sixteenths of an inch, is called the headspace. It has a definite function in canning, as a deficient headspace may result in lack of adequate vacuum; while too much headspace results in a slack-filled can, even though the net weight of contents may be up to that stated on the label.

A headspace of 3/16 in. is considered about right for the great majority of canned fishery products.



Three Steps In Purse Seining

Color
IN SELLING

The cover pages of this Canned Fish Hand-i-Book were prepared as a demonstration of the power of color and lithography in seafood selling by

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SARDINES

Swift comeback of the California sardine as a major factor in the world's food supply was evident in 1949, after several slim years.

Although overall production was still short of the peak years, the proportion of the catch to be canned was perhaps greater than ever before.

The 1949 pack of California canned sardines—4,416,000 cases—was the second largest ever produced.

California sardine canning boomed in 1949, with fish fairly abundant again after several lean years, and with permits for open reduction closely curtailed.

As result of these factors, plus a high price for the raw fish, an exceptionally large proportion of the catch went into cans, the year's tally for the entire state rising above 4,416,000 cases.

For the fifth successive year the Los Angeles Harbor sardine canneries packed more fish than the plants at Monterey and San Francisco Bay combined. The southern production was boosted by operations in the spring of 1949, when more than a half-milion cases were produced, principally in the month of January.

The surprising production in Southern California was attained in spite of the fact that a full month of fishing—most of November and part of December—was lost in that region as result of a strike.

California's sardine resource, traditionally the heaviest-yielding of all American fisheries, showed marked recovery during 1949 in volume of production from the low levels of recent years.

The improvement was manifest particularly in the San Francisco and Monterey districts, where the catch exceeded the light yields of recent years many times.

Although prices were low and fishing was interrupted by economic disagreement, the factor that heartened all hands, was *the fish were there*—and that was the first consideration.

As 1949 drew to a close the total tonnage produced in California passed 244,000, as compared to 122,074 for 1948. The total pack of California sardines was above 2,900,000 cases as compared to 2,224,172.

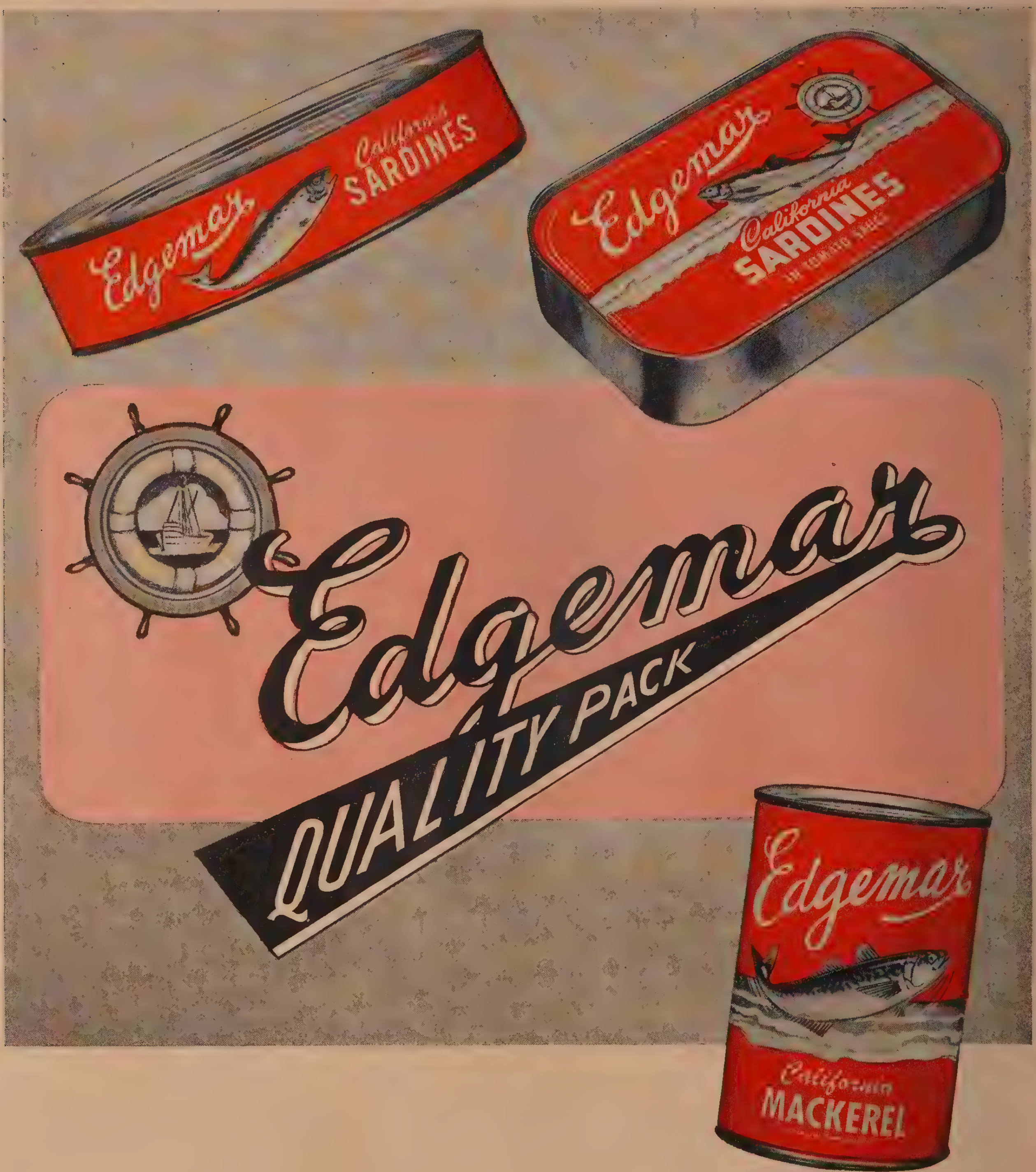
Broken down, as of Dec. 19, San Francisco had received a total of 15,409 tons as compared to 551 to the same date in 1948; Monterey had taken 123,675 tons as against 37,270; and San Pedro had landed 105,036 tons as compared to 84,253.

Again, San Francisco packed 75,672 cases compared to 1,545; Monterey canned 1,555,328 as compared to 630,523; and San Pedro had a pack of 1,336,588 as against 1,592,104 as of Dec. 11, 1949.

1949—CALIFORNIA SARDINE PRODUCTION—1949

	San Francisco Area				Monterey Area				San Pedro and San Diego				Grand
Months	Tons of Fish	Cases, 1-lb. Ovals	Cases, Other Sizes	Total Cases	Tons of Fish	Cases, 1-lb. Ovals	Cases, Other Sizes	Total Cases	Tons of Fish	Cases, 1-lb. Ovals	Cases, Other Sizes	Total Cases	Total Cases (Equivalent to Ovals)
January	61	554	4,142	4,696	1,215	20,742	13,190	33,932	15,649	77,594	400,748	478,342	516,970
February	......	......	......	......	......	......	......	......	75	1,755	119	1,874	1,874
March	......	......	......	......	......	......	......	......	......	......	......	......	......
April	......	......	......	......	235	......	13,406	13,406	6	......	238	238	13,644
May	......	......	......	......	1,451	......	57,322	57,322	490	......	19,413	19,413	76,735
Spring Total	61	554	4,142	4,696	2,901	20,742	83,918	104,660	16,220	79,349	420,518	499,867	609,223
August	608	2,173	1,346	3,519	13,618	95,534	89,913	185,447	*20	......	396	396	189,362
September	4,483	22,600	23,431	46,031	46,417	316,218	249,298	565,516	*22	......	379	379	611,926
October	5,022	11,037	6,240	17,277	37,327	224,677	174,976	399,653	75,197	421,684	647,990	1,069,674	1,486,604
November	4,181	499	......	599	16,207	69,713	114,766	184,479	20,495	78,476	166,031	244,507	429,585
December	2,032	5,997	2,862	8,859	15,980	131,251	224,633	355,884	38,961	192,724	532,598	725,322	1,090,065
Fall Total	16,326	42,406	33,879	76,285	129,549	837,393	853,586	1,690,979	134,695	692,884	1,347,394	2,040,278	3,807,542
Grand Total	16,387	42,960	38,021	80,981	132,450	858,135	937,504	1,795,639	150,915	772,233	1,767,912	2,540,145	4,416,765

*Sardine season not opened but this amount received in loads which contained less than 10% sardines in accordance with fish and game legislation.


Edgemar
California SARDINES
Edgemar
California SARDINES
IN TOMATO SAUCE
Edgemar
QUALITY PACK
Edgemar
California
MACKEREL

Edgewater Packing Company

Office: 300 Montgomery Street, San Francisco
Plant: Monterey, California

It was the best year since 1946 when 3,102,232 cases were packed, but it was the best year for Monterey since 1945 when 1,911,385 cases were put up.

As 1948 ended, a ruling by the Fish & Game Commission practically put the kibosh on a summer pack of fish. In years before sardines could be taken for special packs during the off season, Jan. 15 to Aug. 1, but late in 1948 the commission ruled that sardines less than 14" long could not be taken after Jan. 15 to April 15 for Monterey and San Francisco, and after Feb. 2 to April 15 for southern California.

The regulation was proposed to the Fish & Game Commission by Julian G. Burnette, chairman of the Sardine Advisory Committee which originally proposed the conservation rules under which the industry operated.

Since 14" sardines hadn't been seen in the fishery in any quantities for many years, the commission's ruling acted as a virtual closure for that period. The ruling affected both fishermen fishing for canneries and those seeking bait. A leeway of 25% was allowed.

Although not much canning of sardines was done between the end of the regular sardine season and April, industry observers in Monterey believed that the 14" rule would go a long way in increasing the annual spawn of sardines.

It is the generally accepted theory that during the period affected by the ruling, Jan. 15-April 15, sardines are heading south along the Pacific Coast to spawning grounds in Mexican waters.

Rift Opens in Industry Ideas

With the end of the 1948-49 California sardine season legislative recommendations by Richard S. Croker, Chief, Bureau of Marine Fisheries, Division of Fish & Game, made it evident that the various segments of the California sardine industry were going to go their separate ways in seeking to rebuild the fishery.

In a letter to Thomas Erwin, chairman of the California Assembly's interim committee on fish and game, Mr. Croker recommended that the legislature delegate certain regulatory powers to the Fish & Game Commission in order to rehabilitate the sardine and Pacific mackerel fisheries.

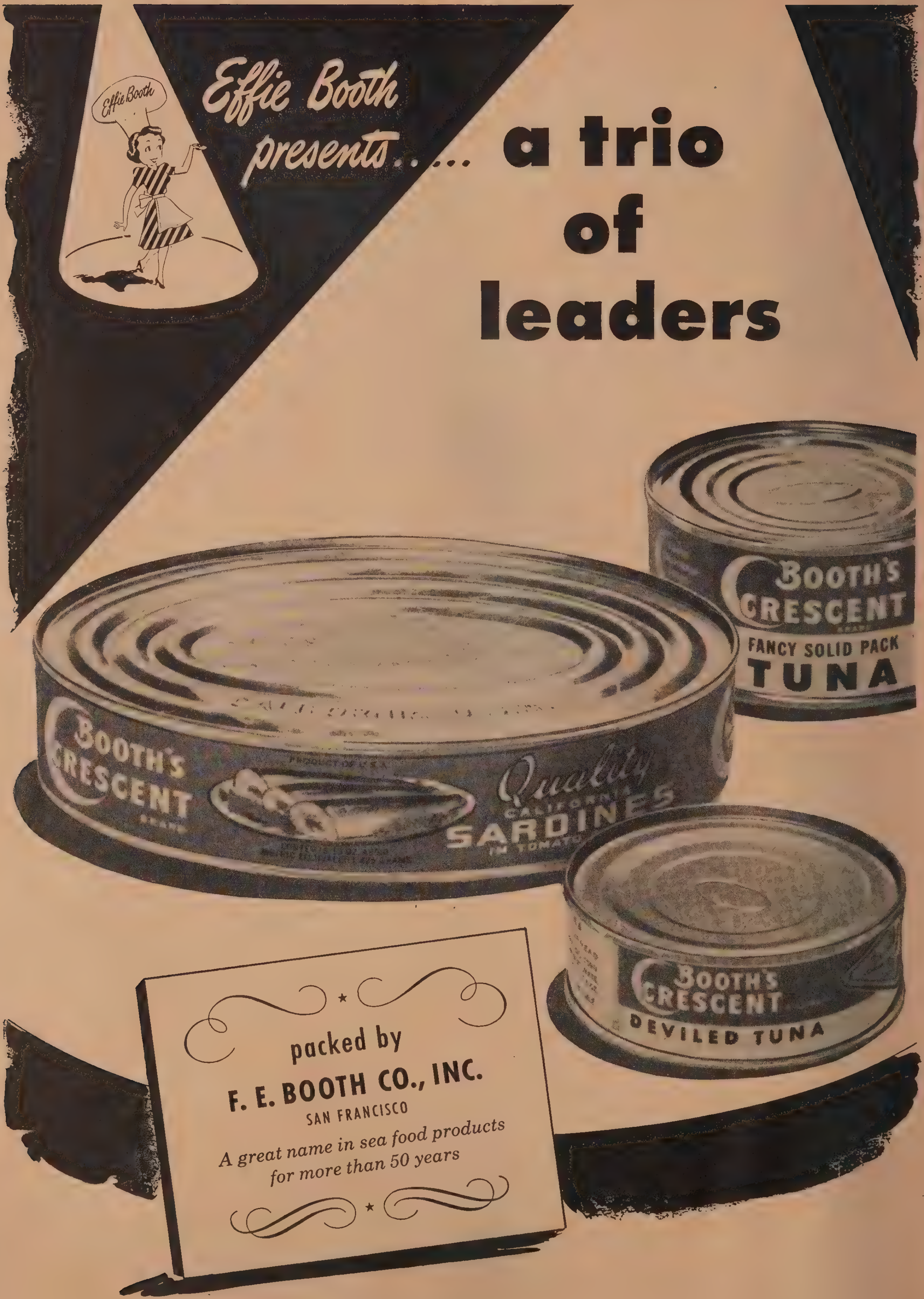
He said that under the system he proposed it is possible to amend regulations to meet changing conditions. Any such system of regulatory powers would be surrounded

CALIFORNIA CANNED SARDINE PACK--1912 TO 1949

Year	Monterey and San Francisco Bay District							San Pedro District						San Diego District			Grand Total Cases	Year
	1-Lb. Ovals (Cases)	1-Lb. Talls (Cases)	½-Lb. Cans Miscellaneous (Cases)	½-Lb. Fillets (Cases)	5-Oz. Talls (Cases)	Other Sizes (Cases)	Total Cases	1-Lb. Ovals (Cases)	1-Lb. Talls (Cases)	½-Lb. Cans Miscellaneous (Cases)	5-Oz. Talls (Cases)	Other Sizes (Cases)	Total Cases	¼-Lb. Square (Cases)	Other Sizes (Cases)	Total Cases		
1912	17,702					1,072	18,774										18,774	1912
1913	73,686						73,686										73,686	1913
1914	80,834						80,834										80,834	1914
1915	46,625					609	47,234										47,234	1915
1916	97,100					8,532	105,632	2,512				3,296	5,808	5,856	48,799	54,655	166,095	1916
1917	331,065					29,809	363,472	131,347				546,033	679,120	71,466	76,136	147,602	1,190,194	1917
1918	593,448					26,151	619,609	325,587				433,374	758,961	67,785	38,633	106,418	1,484,979	1918
1919	805,884					27,084	832,968	125,784				105,741	231,514	39,613	47,420	87,033	1,151,515	1919
1920							706,726						244,900			111,370	1,062,996	1920
1921	287,954					10,975	298,929	77,048				3,765	80,813	8,033	1,337	9,370	389,112	1921
1922	353,188					1,479	354,667	340,938				6,096	347,034	20,986	6,154	27,140	729,034	1922
1923	580,984					10,001	590,985	490,064				2,769	492,833	26,058	22,147	48,205	1,132,023	1923
1924	631,774					22,416	654,190	693,133				4,491	697,624	53,297	15,017	63,314	1,420,128	1924
1925	737,743					37,119	774,862	920,191				2,685	922,876	22,656	33,385	56,041	1,753,779	1925
1926	1,158,133		31,483			2,867	1,192,483	861,088				21,702	861,481	15,761	72,658	88,419	2,163,755	1926
1927	1,341,872		36,363	237	17,808	826	1,397,106	1,046,453			119,815		1,166,268	37,839	24,199	62,038	2,625,412	1927
1928	1,511,535	4,569	43,754	159	80,252	2,495	1,642,764	945,676	9,652		146,724		1,099,052	30,540	42,974	73,514	2,815,330	1928
1929	2,039,526	54,618	16,969	11	75,101	2,187	2,188,412	1,438,159	76,271	8,072	168,039	33,753	1,724,294	10,979	17,774	28,753	3,941,459	1929
1930	1,579,408	74,043	19,692	391	141,524	3,751	1,818,809	863,254	106,460	2,909	228,965	8,138	1,209,726	16,429	24,560	40,989	3,069,524	1930
1931	1,004,215	43,722	11,280		40,375	337	1,099,929	498,996	59,853	11,931	119,390	1,467	691,637	3,312	113	3,425	1,794,991	1931
1932	459,756	4,467	3,276	88	17,726	2,528	487,481	415,874	36,292		54,197		506,363	7,360	281	7,641	1,001,845	1932
1933	838,533	47,575	4,604		38,013	1,532	930,217	365,750	57,969		53,996	4,336	482,051	10,592		10,592	1,422,860	1933
1934	1,091,158	48,769	6,527	8,361	67,913	2,675	1,225,413	531,619	119,506		164,735		815,860	195	10,268	10,463	2,051,736	1934
1935	1,126,466	218,523	39,566	91,525	128,168	27,704	1,631,952	615,808	135,531	25,519	112,264	251	889,373		11,437	11,437	2,532,762	1935
1936	1,089,683	202,148	89,280	113,516	124,490	41,946	1,661,063	586,038	259,793	132,488	156,649	749	1,135,717	10,380	12,483	22,863	2,819,643	1936
1937	679,317	227,806	51,068	73,785	68,164	9,284	1,109,424	761,776	634,215	263,729	200,060	1,509	1,861,289	2,103	10,388	12,491	2,983,204	1937
1938	721,036	58,168	104,419	97,277	154,488	16,287	1,151,675	600,532	318,691	212,064	162,245		1,293,532	19,056		19,056	2,464,263	1938
1939	1,248,747	310,168	125,251	141,900	138,217	28,538	1,992,821	627,524	308,896	217,100	178,072	1,520	1,333,112	148	81	229	3,326,162	1939
1940	933,955	249,195	158,300	151,518	225 975	18,384	1,737,327	664,241	398,960	230,771	156,681	72	1,450,725	37		37	3,188,089	1940
1941	1,601,506	1,092,720	234,093	182,703	296,568	54,961	3,462,551	689,210	870,256	216,972	151,384	2,136	1,929,958	2,279	496	2,775	5,395,284	1941
1942	802,795	663,309	8,283	75,386	94,755	59,695	1,704,223	619,881	1,342,030	85,776	90,672	2,918	2,141,277		1,285	1,285	3,846,785	1942
1943	1,045,451	832,934	128,438		20,208	36,037	2,063,068	400,504	846,314	44,516	26,507	2,235	1,320,076		697	697	3,383,841	1943
1944	1,051,397	1,088,918	61,828	20,584	374	18,255	2,241,356	434,414	963,551	23,297		1,040	1,422,302				3,663,658	1944
1945	766,554	951,346	81,019	10,075		102,391	1,911,385	444,649	1,480,175	48,215			1,973,039				3,884,424	1945
1946	123,063	171,698	39,376	10,233		9,050	353,420	602,008	2,073,679	73,125			2,748,812				3,102,232	1946
1947	108,289	71,691	72,995	155,677		4,181	412,833	510,760	802,243	29,327	57,260		1,399,590		1,627	1,627	1,814,050	1947
1948	400,841	197,865	527,346	16,645		994	1,143,691	611,927	970,569	347,991	120,413		2,050,900	6,587		6,587	3,201,178	1948
1949	901,095					975,525	1,876,620	772,233				1,767,912	2,540,145		⊕		4,416,765	1949

NOTE:—Figures for 1949 are preliminary totals from official sources. Those for previous years have been corrected from statistics of the California Division of Fish and Game. Full segregation of the various sizes is not available for years prior to 1926 and is estimated for 1949. Figures for years prior to 1949 are given in cases "as they run," without reduction to standard cases. The great majority of the production however, consists of 48-lb. cases. Figures for "Other Sizes" in 1949 have been reduced to standard cases, equivalent to cases of 48-1-lb. ovals.

⊕Segregation of San Diego production not available. Figures are combined with San Pedro district.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Provision would be made for the advisory committee which would be consulted prior to the adoption of any resolution, according to Mr. Croker's plan. The advisory committee insofar as sardine and mackerel are concerned would consist of five members, one representative each of labor (fishermen and cannery workers); boat owners; management (plant operators); organized sportsmen, and a member of one of the legislative committees of fish and game.

Mr. Croker then recommended that the law specify that the California sardine processing industry may not be cut below a take of 100,000 tons per year.

Quota Proposals Are Advanced

Several methods of allotting quotas were outlined by Mr. Croker:

1. A state-wide industry quota with all boats and plants starting simultaneously on a first-come, first-served basis. (This sort of plan has been satisfactory in the halibut industry, according to Mr. Croker.)
2. Regional allotments with each area receiving its own quota.
3. Each plant to be given a specific quota, under permit, based on previous operations. (Mr. Croker said this would be the most equitable method.)
4. Each vessel to be given a specific quota, under permit, based on the size of the boat.

Mr. Croker finally stated that the total bag limit system can be expected to aid the recovery of the sardine and mackerel fisheries with a minimum of dislocation to the industry.

He said that closed seasons offer little protection to a pelagic migratory fish, and that only a seasonal limit or quota system can insure a season both short enough to protect the fish, and long enough to insure a maximum safe catch.

There would be no summer pack. With a seasonal catch limit allotted to individual plants, those processors who wished to provide year-round employment for their fishermen and cannery workers could save some of their plant allotment and utilize it during the off season.

Mr. Croker said that closed areas to protect pelagic migratory fish are not effective. The size limit idea would be abandoned as unworkable, but Mr. Croker said the same effect would be secured with a quota system, for no processor having a definite allotment would accept small fish because it would result in a lower total case pack at increased cost.

An increase in the case pack per ton requirement was recommended from the present 13½ cases per ton to at least 16 cases per ton.

Fish trucking from one point to another for processing was okayed, Mr. Croker stating that there was no

1936-1949 California Sardine Industry

Catch, Pack, Oil and Meal Yield, by Seasons

	Catch, Tons	Oil, Gallons	Meal, Tons	Case Pack, 1-Lb. Ovals or Equivalent
1936-37 SEASON				
Northern District	139,429	5,509,905	23,686	241,607
Central District	206,229	6,814,184	31,867	1,288,205
Southern District	142,483	1,975,834	19,562	1,459,234
Season Totals	**488,141**	**14,299,923**	**75,115**	**2,989,046**
1937-38 SEASON				
Northern District	132,248	4,659,147	23,058	160,977
Central District	104,464	3,067,587	15,383	828,737
Southern District	109,122	1,448,543	14,540	1,310,715
Season Totals	**345,834**	**9,175,277**	**52,981**	**2,300,429**
1938-39 SEASON				
Northern District	200,361	7,804,909	34,751	224,112
Central District	180,090	5,462,066	28,859	1,063,363
Southern District	148,125	2,235,082	22,603	1,286,301
Season Totals	**528,576**	**15,502,057**	**86,213**	**2,573,776**
1939-40 SEASON				
Northern District	211,471	9,313,706	36,324	286,639
Central District	227,231	7,090,963	34,568	1,763,401
Southern District	93,176	985,323	12,161	1,084,928
Season Totals	**531,878**	**17,389,992**	**83,053**	**3,134,968**
1940-41 SEASON				
Northern District	117,817	4,809,853	20,541	288,413
Central District	165,145	5,197,570	25,805	1,219,846
Southern District	171,747	2,390,887	24,776	1,608,207
Season Totals	**454,709**	**12,398,310**	**71,122**	**3,116,466**
1941-42 SEASON				
Northern District	185,921	7,162,343	29,935	854,709
Central District	249,717	7,222,683	36,309	2,429,804
Southern District	147,825	2,113,939	18,859	1,870,601
Season Totals	**583,463**	**16,498,965**	**85,103**	**5,155,114**
1942-43 SEASON				
Northern District	115,586	4,467,454	19,114	413,165
Central District	183,158	5,590,335	28,255	1,429,652
Southern District	202,597	3,090,994	29,614	1,862,073
Season Totals	**501,341**	**13,148.783**	**76,983**	**3,704,890**
1943-44 SEASON				
Northern District	126,132	5,018,816	20,064	425,487
Central District	212,383	6,578,416	32,840	1,563,036
Southern District	135,007	2,185,779	20,608	1,161,750
Season Totals	**473,522**	**13,783,011**	**73,512**	**3,150,273**
1944-45 SEASON				
Northern District	136,337	5,616,063	22,258	271,528
Central District	234,613	8,305,401	34,920	887,190
Southern District	177,465	3,781,148	26,795	1,102,662
Season Totals	**548,415**	**17,702,612**	**89,973**	**2,261,380**
1945–46 SEASON				
Northern District	83,483	3,581,808	12,765	456,001
Central District	142,282	4,803,560	20,297	1,220,579
Southern District	170,325	2,846,216	23,481	2,073,963
Season Totals	**396,090**	**11,231,584**	**56,543**	**3,750,543**
1946–47 SEASON				
Northern District	2,846	65,002	519	6,590
Central District	26,818	755,674	3,893	155,329
Southern District	198,052	3,314,193	26,870	1,931,544
Season Total	**227,716**	**4,134,869**	**31,182**	**2,093,463**
1947–48 SEASON				
Northern District	383	4,440	37	5,793
Central District	14,492	260,375	1,756	222,867
Southern District	95,362	1,458,983	11,762	1,258,660
Season Total	**110,237**	**1,723,798**	**13,555**	**1,487,320**
1948-49 SEASON				
Northern District	1,688	16,590	127	34,197
Central District	52,203	783,627	5,566	914,624
Southern District	127,350	1,436,939	13,301	2,113,897
Season Total	**181,241**	**2,237,156**	**18,994**	**3,062,718**
OFF-SHORE FLOATING REDUCTION PLANTS (not included above)				
1936–37 Season	239,257	9,034,041	39,876	....
1937–38 Season	74,334	2,479,731	12,389	....
1938–39 Season	57,212	2,021,810	9,535	....

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valid reason from a conservation standpoint of prohibiting the practice so long as spoilage and waste did not result.

Industry Offers Varied Programs

The San Francisco Sardine Association studied Mr. Croker's letter and following a number of meetings decided it would ask legislation providing for the plant system of allocation. However, this was not the unanimous decision of all sardine plant operators in the San Francisco area.

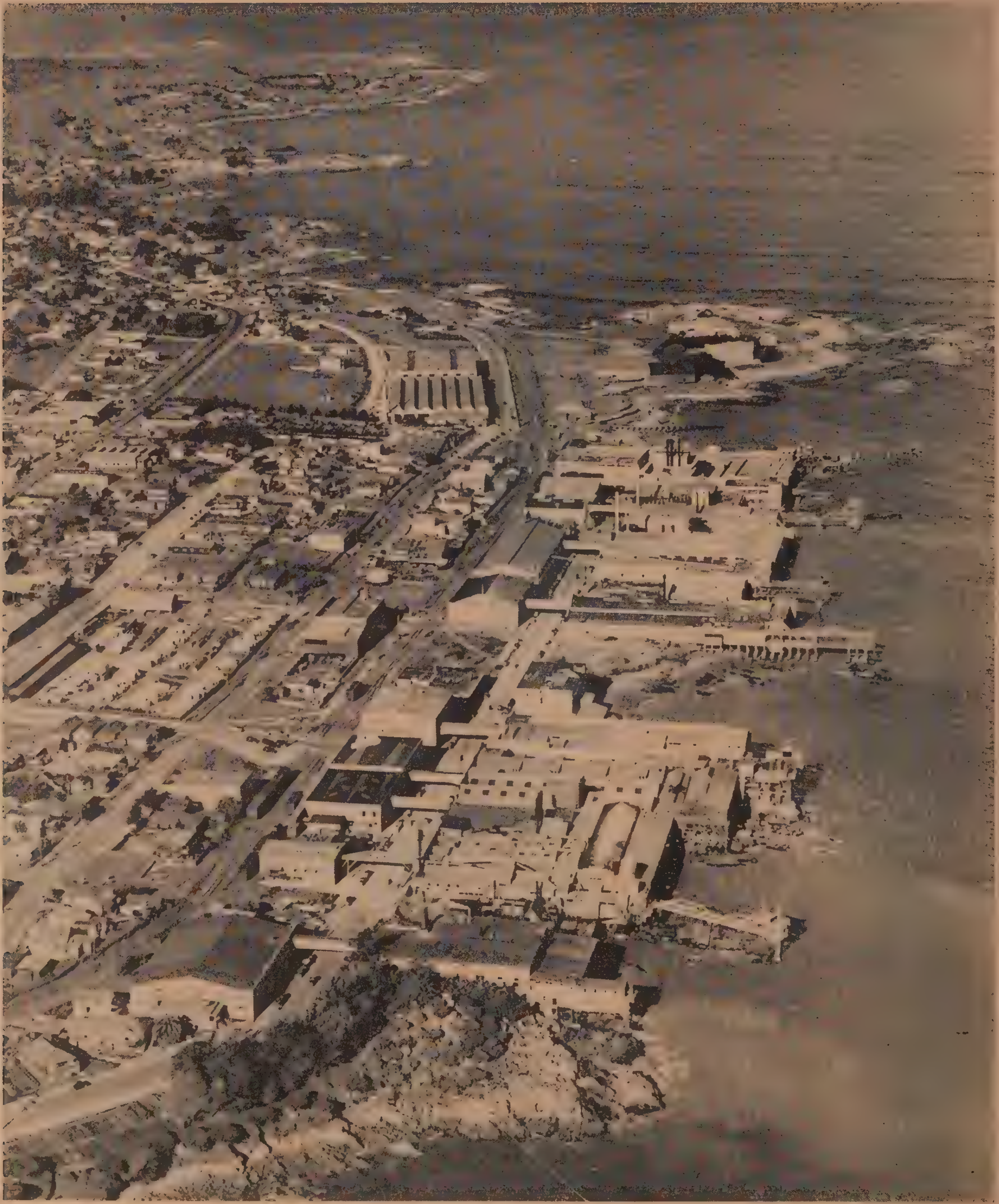
The Monterey Fish Processors Association, following a number of meetings, came up with a program which George Clemens, executive secretary of the group, said had the backing of Monterey fishermen, boat owners, plant workers, and plant operators. This called for legislation setting the northern California sardine season from Aug. 1 to Dec. 15, and in southern California from Sept. 1 to Jan. 15. The off-season pack would be put up between May 15 and July 15 for all of California.

In other words, Mr. Clemens said that the Monterey industry was in favor of cutting down the potential fishing effort from 12 to 6½ months. He said that this would result in a 25-30% reduction in fish to be landed. There would be a five-day fish-

1949—CALIFORNIA SARDINE LANDINGS—1949

Dates		San Francisco Tons	Monterey Tons	San Pedro Tons
Jan.	1			
	2			
	3			
	4			37
	5		275	2,377
	6		30	689
	7	75		1,498
	8			1,419
	9			
	10			
	11—Light of the Moon			98
	12			
	13			
	14			
	15			
	16			
	17			
	18		325	1,160
	19		285	1,848
	20			160
	21			1,456
	22		70	2,283
	23			
	24			
	25		52	539
	26		46	1,206
	27			*599
	28			149
	29			
	30			
	31—End of regular canning season			
Aug.	1			Season
	2			Not
	3			Open
	4			Until
	5			Oct. 1
	6			
	7			
	8			
	9			
	10			
	11			
	12			
	13			
	14			
	15			
	16			
	17			
	18			
	19			
	20			
	21			
	22			
	23	385	2,910	
	24	237	3,300	
	25	280	2,200	
	26	346	3,143	
	27	650	1,487	
	28			
	29		83	
	30		21	
	31			
Sept.	1			
	2		171	
	3		171	
	4			
	5—Light of the Moon.			
	6			
	7			
	8			
	9			
	10			
	11			
	12		4,450	
	13		3,119	
	14		3,300	
	15		2,700	
	16		3,226	
	17		3,024	
	18			
	19		4,473	
	20		2,075	
	21		74	
	22	639	3,850	
	23	219	1,044	
	24	114		
	25			
	26	944	4,800	
	27	830	2,570	
	28	147	1,333	
	29	538	2,365	
	30	717	2,500	
Oct.	1	799	2,800	
	2			
	3	160	1,400	
	4	53	446	
	5—Light of the Moon.			822
	6			239
	7			139
	8			
	9			
	10			1,416
	11	367	1,500	4,326
	12	31	1,570	3,474
	13		1,100	3,581
	14	78	1,300	5,962
	15	229	4,000	4,941
	16			
	17		153	6,834
	18			4,546
	19			
	20	105	2,300	4,288
	21	226	4,045	6,705
	22	511	3,691	6,383
	23			
	24	309	1,940	3,698
	25	1,111	4,850	4,518
	26	22	824	2,887
	27	92	2,813	1,902
	28	151	2,100	2,766
	29	52	550	3,279
	30			
	31	602	1,055	4,263
Nov.	1		128	2,993
	2			4,210
	3			5,962
	4—Light of the Moon.			
	5			
	6			
	7			
	8			
	9		97	482
	10			751
	11			
	12		800	
	13			
	14	249	1,400	335
	15		1,591	169
	16		3,050	144
	17	581	1,864	
	18		900	219
	19	149	1,600	138
	20			
	21	106	1,326	223
	22		750	137
	23	600	149	100
	24			
	25	374		43
	26	369	827	197
	27			
	28	12	450	278
	29		751	118
	30	343	1,700	103
Dec.	1	320		100
	2	305	111	175
	3	190		122
	4			
	5—Light of the Moon.			41
	6			33
	7			
	8			
	9	14	1,369	
	10			
	11			
	12	168	1,652	
	13			252
	14		300	265
	15		1,200	353
	16		800	4,842
	17		1,720	5,385
	18			
	19		120	4,344
	20	67		2,181
	21	129	272	3,775
	22	190	373	5,076
	23		80	3,794
	24			3
	25			
	26			
	27		493	2,650
	28		700	3,481
	29			2,940
	30			1,303
	31			9

*Includes some landings previously un reported.



THE FAMOUS SARDINE CANNERY ROW AT MONTEREY

Here where American California had its beginnings, the California sardine industry started. This group of plants, with another similar but smaller group not shown in the left foreground, is the compact core of the sardine canning industry in northern California. Facing on the open sea, the plants lack facilities for berthing fishing vessels, so the purse seiners tie up at floating hoppers off the picture to the right, into which they brail their catches. The fish are then pumped through submarine pipelines to weighing stations in the canneries. Structures to the left, across Cannery Street, are warehouses, reached by overhead passages.

ST. CHRISTINA II

St. Christina II is an 82′ seiner which combines sardine and tuna fishing abilities. Owned by Salvatore DiLeva and sons, she is powered with a 320-hp. Washington diesel, with twin General Motors diesel auxiliaries. She is featured by hydraulic drive for all auxiliary machinery, and was built by Al Larson at Terminal Island.

ing week, and a five-day light of the moon period.

When the season was closed there would be no sardine fishing at all, not even for bait. This program was concurred in by the AFL Fish Cannery Workers of the Pacific, Monterey, San Pedro, San Diego, and San Francisco, affiliate of the Seafarer's International Union of North America, AFL.

Mr. Clemens said that the Monterey fishing industry as a whole was united in being opposed to any type of quota or bag limit.

The CIO International Fishermen & Allied Workers Union worked on a legislative program that would give the Fish & Game Commission certain plenary powers for two years, but these powers would be specified in the legislation. The principal power would be setting the tonnage to be taken of sardine and mackerel for all purposes—not less than 200,000 tons of sardines during the season, and not less than 35,000 tons of mackerel for the entire state.

There would be a uniform starting date for the season for the entire state, and as soon as the quota of sardines and mackerel was landed all fishing for the species for any purposes at all, would cease. A proposed starting date for the sardine and mackerel season for the entire state was Sept. 1.

Should there be a great abundance of fish the Fish & Game Commission would have authority to increase the bag limit. A 7″ size limit was being considered.

Monterey Fishing Closes Early

As the Northern California sardine season ended Jan. 15, it was evident that while 1948-49 was certainly no banner year, at least it was a little better than the two previous seasons.

Fishing had stopped off Monterey by Jan. 8, 1949, due to the cold and stormy weather, but some fish were being received from southern California by truck. Packers were still paying $50 per ton for good fish.

There was no indication that much fish would be trucked from Port Hueneme and other southern California ports to Monterey during the two weeks between the closing of the Monterey season Jan. 15, and the closing of the southern California season Feb. 1.

According to George Clemens, executive secretary, Monterey Fish Processors Association, unloading elevators at Port Hueneme were being removed from the docks there. He said that members of his organization could not pay the trucking charges involved in the transshipment and still meet competition from southern California sardine packers.

Several canners not members of the association were continuing to truck fish to Monterey.

Trucking Extends Canning

Previous to that there had been a dispute between Monterey boat owners and canners as to whether or not boat owners should pay a truckage allowance for sardines shipped from Port Hueneme to Monterey.

The Monterey Purse Seine Association had gone on record opposing payment of truckage of fish from southern California ports to Monterey, and some canners at that time contended that shipping costs should be paid by fishermen.

Following the regular monthly meeting of the California Fish & Game Commission the way was open for a continuance of the regular Monterey sardine pack two

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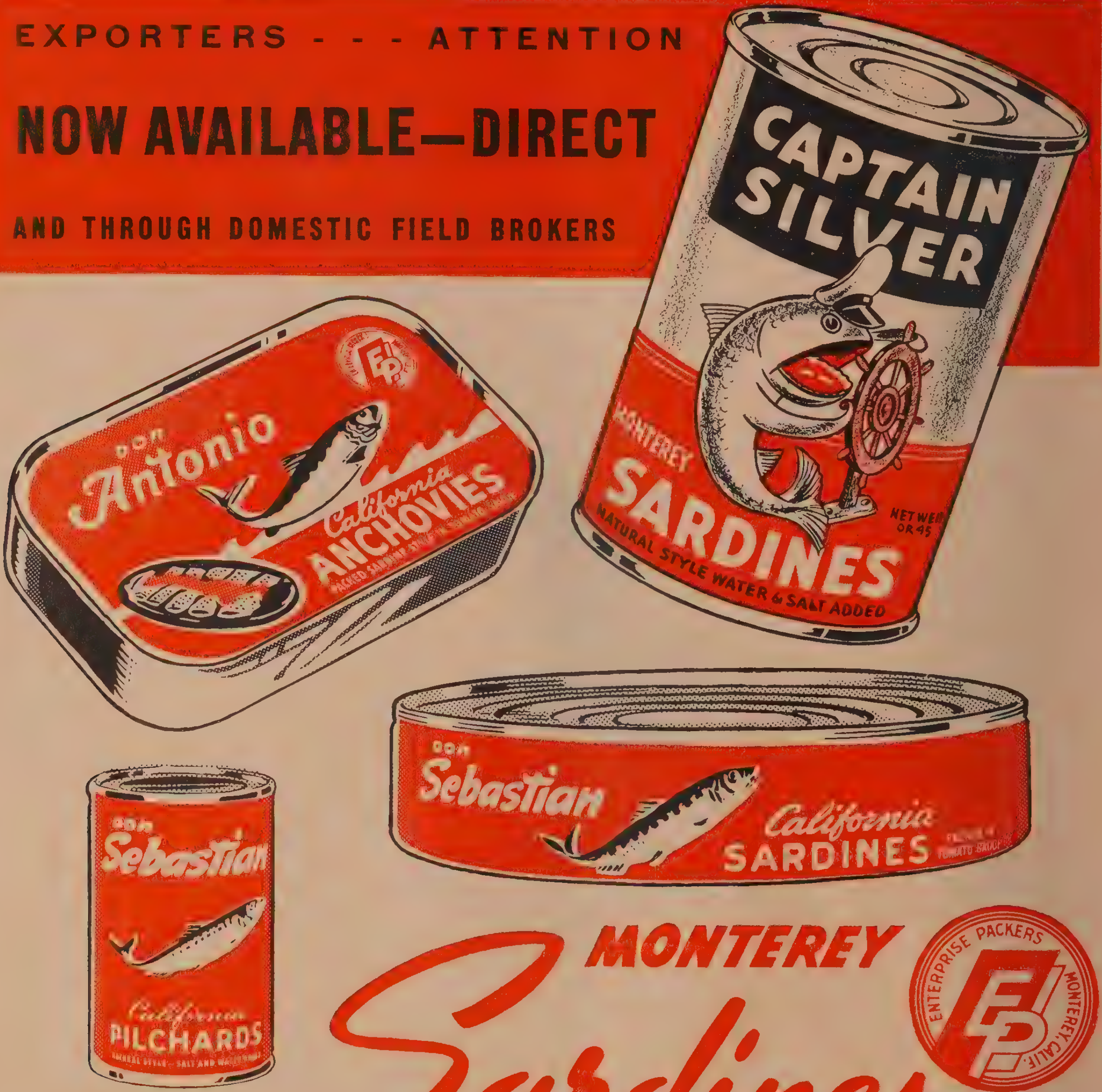
CAPTAIN SILVER
MONTEREY SARDINES
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Don Antonio
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EP
Don Sebastian
California SARDINES
IN TOMATO SAUCE
Don Sebastian
California PILCHARDS
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weeks beyond the legal closing date of the northern California fishing season, Jan. 15.

Under a ruling of the Commission, fish taken in southern California waters before Feb. 2, when the season closed there, could be trucked to Monterey for processing.

The ruling was important to Monterey canners since a large portion of the fish being processed at that time were being trucked in from Port Hueneme and San Pedro.

Sardine Legislation Enacted

In April California's divided sardine factions—North vs. South—sat down in a smoke-filled room in Sacramento and after two hours of debate finally worked out amendments to a bill by Assemblyman Vincent Thomas, San Pedro, that was satisfactory to most of the industry and one which they would support.

The meeting had been called by Mr. Thomas, who acted as chairman. The amendments to a bill which had already been introduced by Mr. Thomas provided:

1. Continuation of the split season on a permanent basis, from Aug. 1 to Jan. 15 in central and northern California; and from Oct. 1 to Feb. 1 in the south—thus cutting one month off the end of the season as it formerly stood in each area.
2. Elimination of the summer pack for two years, effective with the signing of the bill by the governor.
3. No size limit on the fish.
4. No power to the Fish & Game Commission to extend the seasons.

This proposed legislation was shortly made into law, and as it stands now the summer sardine pack is ended. In southern California the season opens Oct. 1, and closes Feb. 1; in northern California Aug. 1-Jan. 15. The elimination of the summer pack clause may be reconsidered after two years ending June, 1951.

Small Spring Pack Put Up

During what there was of summer fishing in Monterey some eight boats were placed on the "unfair" list of the Monterey AFL Seine & Line Fishermen's Union because it was said that they had been selling sardines to canneries below the union approved price of $50 per ton. The boats and landing places were picketed by the union.

Canners steadily refused to accept the $50 set by the union and boat owners and held out for a $30 per ton maximum. Most of what summer season sardine deliveries there were went to fresh fish and bait markets. The summer pack season would ordinarily have extended until July 15 at which time plants usually closed down to get ready for the regular season starting Aug. 1.

Santa Teresa is a 55′ purse seiner, typical of the smaller type used for sardine and mackerel fishing. Owned by Tony Zangaro and John Sima, she was built by the Al Larson Boat Shop, Terminal Island, and is powered with an Atlas-Imperial diesel.

During April Monterey plants processed some 235 tons of sardines, producing some 8,159 cases of 8-oz. oblong cans.

Hopes of northern California's sardine industry for a normal season after four failures appeared to be bright in mid-July.

For one thing, boats seeking bait out of San Francisco reported many more sardines seen than in years past.

Another thing that encouraged San Francisco operators was the possibility that more boats might be coming to California to seek sardines. A number of San Francisco sardine operators have felt that there would have been more fish brought into the port in the past few seasons, had there been more boats out looking for them.

Pre-Season Price Discussions

What was to be the price of California sardines to the fishermen? That was the $64 question to the industry during mid-July.

It had been reported that the price of sardines in the Pacific Northwest was $30 per ton for fish for reduction.

In July some observers seemed to feel that California fishermen's ideas were around $50-60, while processors didn't feel that they could pay more than $30-35.

Northern California's sardine season was officially open Aug. 1, but nothing happened, due to failure of fishermen, boat owners and operators to get together on the price of fish.

Plant workers and operators also had not come to an agreement about the terms of a new contract, although meetings were held between the AFL Fish Cannery Workers Union and the Monterey Fish Processors Association on the questions of vacation benefits, the only point of disagreement holding up the signing of a contract.

Union members wanted vacations to start with 800 hours work with three days off with pay. Under the old contract workers got a week's vacation with pay for 1,200 hours.

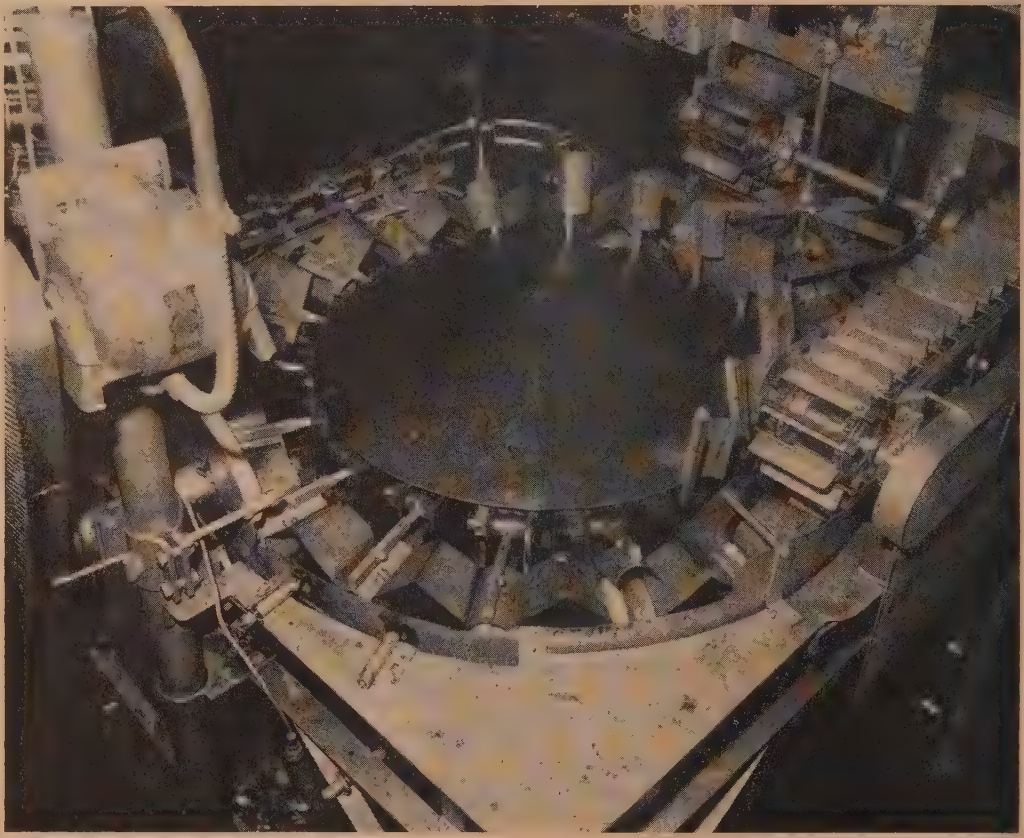
The price ideas of sardine boat owners and fishermen were still far apart, with boat owners asking $50 per ton for sardines, while canners claimed they couldn't pay more than $25 per ton.

John Crivello, secretary of the Seine & Line Fishermen's Union, Monterey, said that the $50 price agreed on between his union and the boat owners compared to $67.50 per ton at the beginning of the 1948-49 season.

Horace Mercurio, manager of the Monterey Purse Seine Association, said that boat owners were negotiating their first contract with the processors since the 1941-42 season. During the war there was no contract

Equip Your Cannery

with a NEPTUNE Automatic Sardine Filling Machine for Round Cans



The NEPTUNE Automatic Sardine Packing Machine, as seen above from the intake end. Note the two conveyors from the vacuum dressing machine, and how the spider turns half the fish end-for-end. The cans are next filled by a piston, righted and ejected onto the revolving plate. Speed is 60 cans per minute.

Enjoy These Distinctive Features . . .

- Unit combines a vacuum cutting machine and a packing machine, operating in coordination.
- Insures firmer and more uniform pack.
- Fish don't lie in the holding tank, but come right through the cutting machines into the packing machine.
- Does away entirely with hand labor in packing round cans.
- Sardines may be packed with machine 4 to 11 fish in a can . . . Delivery conveyors controlled by variable speed transmission.
- Fish are interlaced in cans as in hand packing.
- Capacity 60 cans per minute . . . equal to 12-15 hand-fillers.

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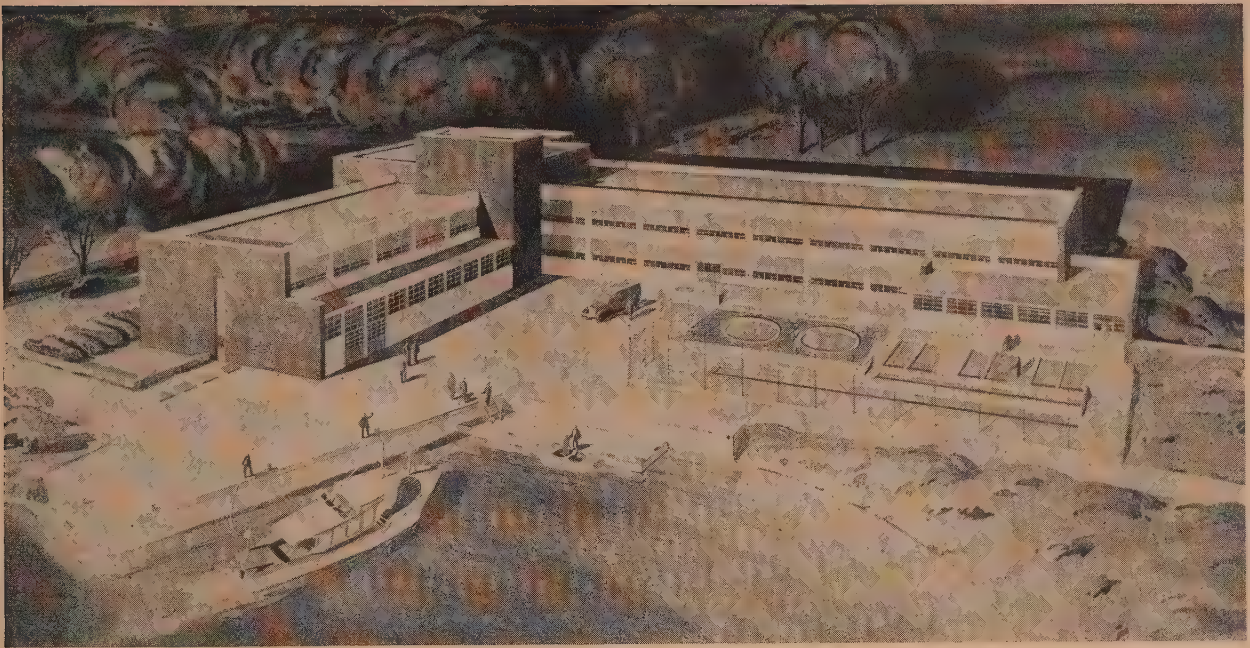

The center of American fishery education, as it will appear when completed in 1950—the new School of Fisheries Building under construction at the University of Washington, Seattle. Administrative offices and library are in the portion at the angle of the building. Pilot plants and technological laboratory are located in the left wing; classrooms and offices of the state fisheries and International Fisheries Commission are in the wing to the right. Fish cultural ponds and laboratory are below. Singularly, no provision is made in the building for housing the Fisheries Research Institute of the University.

because fishing was controlled by the government.

The boat owners were on record at the end of the 1948-49 season for a price of $50 per ton, and Mr. Mercurio said that price was still in effect, although conditions of the contract might change the price somewhat.

Price Set First at $40

It was "on again, off again" for northern California's 1949-50 sardine season during September.

The price had finally been settled at $40 per ton as the season got underway Aug. 22. After a week's fishing during which some 13,433 tons were landed at Monterey, and 1,998 tons at San Francisco, fishing suddenly halted at both ports when some canners in Monterey said a week of fishing had showed them that sardines were worth but $30 per ton. Other canners in Monterey were willing to pay $40 per ton, and some seven of them signed up with boats owners at that price.

However, the sardine fleets remained at anchor. John Crivello, business agent for the Monterey Seine & Line Fishermens Union AFL said that the fleet had not gone out for the seven canneries that signed because orders from them had been too small.

San Francisco reduction plant operators had told fishermen that they couldn't afford to take fish for more than $30 per ton.

As the discussions went on the moon slid over into the light period and it was realized that no fishing would be done before Sept. 11 at the earliest.

$35 Price Set with Limits

Finally on Sept. 7 an offer was made to Monterey boat owners for $35 per ton with daily limits of 57 tons per boat guaranteed. This offer was accepted by boat owners, fishermen's unions, and the fleet sailed Sept. 11. Catches were good, some 3,700 tons on Sept. 12, and 3,000 tons on Sept. 13.

Sardine fishing got underway again after the October light-of-the-moon period with prices scaled downward from $40 per ton when the season opened to $32.50 per ton as the boats put out the night of Oct. 11.

The following plants were operating in the San Francisco area: F. E. Booth, Inc.; Northern Packing Co., Keystone Fisheries, J-D Packing Co., Martinez Food Canners, Red Rock Fisheries, Carquinez Fisheries, American Sardine Co., and Golden State Fisheries.

The season had started with boats operating on limits of 50 tons out of San Francisco, but some plants then raised the limit to 100 tons. Some 28 purse seiners, mostly out of the Northwest, were fishing from San Francisco.

With the landing of 3,156 tons of sardines Sept. 16 at Monterey and Moss Landing the tonnage for the 1949 season exceeded 30,000. That figure was comparable to the entire 1948 season, which was 34,000 tons.

Sardine Prices Viewed Historically

As the season ended the price of $32.50 per ton of sardines appeared to be firm. During the 1948-49 season price of sardines had been around $67-$50 per ton. During the 1947-48 season prices ranged from $45 at the beginning of the season to $115 per ton as "the famine" year drew to a close.

During the 1946-47 season the price of sardines was $30 per ton but it was reliably reported that some loads were landed at $60 per ton. And in Dec. of that year, the price did go to $60.

The price of sardines has ranged from a low of $4 per ton in 1932 to the $115 per ton unofficially reported at the end of the 1947-48 season.

The price was $11 per ton from 1926 through 1929. It dropped to $8 in 1930 and 1931, only to go as low as $4 in 1932, rising to $7 in 1933.

The following year saw sardines at $7.50 per ton, rising to $8 in 1935, and $10 in 1936. The price took a

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jump in 1937 to $13 yielding $2 of that advance in 1938.

During the 1940-41 season the price was $10.50 per ton, and in 1941 it rose to $17 per ton. The price in the succeeding season was set by the OPA at $22 per ton, and stayed there through the 1945-46 season.

When the 1948-49 season ended fishermen were getting $50 per ton for their fish.

Up to the November 1949 full moon period more fish had been caught in the first three months of the season than in the past three years combined.

A breakdown of the official catch figures shows totals for the past three seasons at Monterey: 1946-47—26,787 tons; 1947-48—9,538 tons; 1948-49—34,943 tons for a total for the three seasons of 71,259 tons as compared to the 97,609 tons landed in Monterey in the 1949-50 season up to the November full moon.

Late Season Fishing Unsatisfactory

Bad weather in October curtailed fishing operations out of San Francisco, but as the November dark opened there were 17 purse seiners fishing out of that port, and 13 reduction plants and canneries were running on the Bay.

As the December light of the moon ended Dec. 8 northern California sardine fishermen were hoping for a winter run of sardines which in normal times provided about 20 days of fishing in Monterey Bay, and north.

November's total 19,437 tons of sardines was the lowest monthly catch at Monterey since August. During most of the month seiners made their sets off San Luis Obispo and spent 10 to 12 hours on the trip from Monterey to the fishing grounds.

As of the middle of December 1949, the season's total at Monterey had reached 117,704 tons, and at San Francisco was more than 14,000 tons. This was the largest catch since the winter of 1945. Fishing was due to continue until Jan. 15.

Fishing was unsatisfactory in Monterey Bay during December because of a large number of anchovies mixed with the sardines. Best catch during the month of November was on the 16th when 3,094 tons were netted.

Horace Mercurio, veteran purse seine skipper and manager of the Monterey Purse Seine Association, boat owners' group, felt that if limits had not been imposed on the Monterey fleet, twice as many fish would have been landed there during the 1949-50 season.

He pointed out that the season didn't start until 20 days after it was supposed to have, and that boats were then on 20-ton limits. Limits ranged all through the season from 20 to 100 tons per boat.

Mr. Mercurio points out that during the first three months of the season fishermen were giving away fish to other boats, to give them the limit.

"There was no waste of fish," said Mr. Mercurio. "The sardines were back. They were plentiful, and the feed is back. They are not two-year-old fish, but range all the way from three to six years of age, being from 9 to 14" long. Also the fishermen don't catch the same size fish all the time—some fish are fatter than others."

During the season the Monterey Purse Seine Association and the AFL Seine & Line Fishermens' Union cooperated in the employment of seven inspectors to check the canners' weighing apparatus and flumes to see that they were in good shape.

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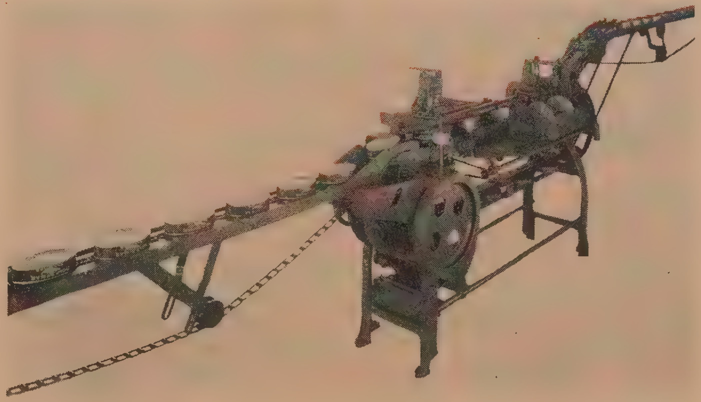

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1949 Southern Area Sardine Operations

Return of sardines in large quantities to Southern California was amply proved during the initial part of the 1949-50 season. In spite of lengthy tie-ups of the fleet, which saw fishermen losing more than half of dark-of-the-moon fishing days to December 15, 95,000 tons had been brailed since the season opening October 1, against a total seasonal catch in the 1948-49 period of 118,000 tons; and 95,362 tons in 1947-1948.

Raw price paid to fishermen at the opening of the 1948-49 season was $67.50 per ton, as compared to the previous seasonal opening of $50. However, the price dropped to $50 before the period legally ended February instead of the customary March 1 termination. For the 1948-49 season the southern case pack was 1,768,126 cases.

Features of the summer season were: elimination of the off-season pack and continuation of the split-season which gave Southern California a fishing period, October 1 to February 1, and with no limit on size of fish. By the end of the 1948-49 season ovals were quoted at $7.25 to $8; talls around $5.00. In March fire causing $90,000 damage occurred at American Sea Foods Company, Wilmington. This cannery later closed permanently.

Late Start Made in 1949

The season opened for 1949-50 on October 1, but the large seiners did not start. However, a number of independents and small vessels started and delivered small tonnage. The main fleet was held idle as price negotiations dragged on. The fishermen wanted $50; the canners said they could not afford to pay that price. By October 10 a price of $32.50 per ton had been agreed upon, and the fleet went on an agreed six-day week. Limits were set on all vessels, ranging from 50 to 100 tons, according to needs of contract canners.

On the previous October 1 a tonnage of 7,148 was delivered, but by October 10 of this season only 1,200 tons had been brailed, by small vessels, against a total of 27,400 tons. So good was the fishing that by October 17 the fleet had caught up with the previous year, 31,734 tons against 31,881.

When the first light period November 3, began, the 1949-50 season had surged ahead of the previous season, 90,134 against 41,086 tons. Such good luck for vessel owners and fishermen was not to continue long. As the second dark began, a strike was in progress and this lasted until December 16 when, with resumption of fishing, 4,000 tons came in a single night.

Month Lost in Union Strike

The tie-up came after the unions accused the canners of unfair practices as regards raw price. The CIO proposed to establish a central committee to exercise control over the entire fleet and establish limits on an equal basis for all. This was not acceptable either to vessel owners as represented by associations, or to canners.

Under the proposal the union would have set up a plan whereby

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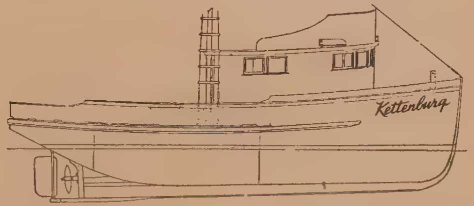

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California Sardine Oil Yield Per Ton

SEASON	SAN FRANCISCO DISTRICT, Gallons Oil per ton of fish	MONTEREY DISTRICT, Gallons Oil per ton of fish	SAN PEDRO DISTRICT, Gallons Oil per ton of fish	SAN DIEGO DISTRICT, Gallons Oil per ton of fish	Season
1930 - 31	47.5	43.2	26.3		1930 - 31
1931 - 32	47.1	43.1	28.5		1931 - 32
1932 - 33	43.0	45.6	29.1		1932 - 33
1933 - 34	39.6	37.0	31.3	17.7	1933 - 34
1934 - 35	41.7	44.5	30.7	24.7	1934 - 35
1935 - 36	49.9	46.8	27.9	21.0	1935 - 36
1936 - 37	41.3	39.1	18.9	17.9	1936 - 37
1937 - 38	36.3	36.6	19.3	11.1	1937 - 38
1938 - 39	40.2	35.6	19.8	13.4	1938 - 39
1939 - 40	45.5	38.7	15.5	5.0	1939 - 40
1940 - 41	43.8	38.6	18.7	18.3	1940 - 41
1941 - 42	43.8	38.2	21.9	16.7	1941 - 42
1942 - 43	42.4	38.0	19.9	14.7	1942 - 43
1943 - 44	43.5	38.0	20.7	18.9	1943 - 44
1944 - 45	45.0	43.4	27.4	16.3	1944 - 45
1945 - 46	49.7	43.0	24.0	21.5	1945 - 46
1946 - 47	24.3	36.5	24.5	19.9	1946 - 47
1947 - 48	17.8	23.7	23.9	32.1	1947 - 48
1948 - 49	18.7	27.4	20.8	25.9	1948 - 49

packers would have nothing to say as to the disposition of their own vessels, and would have had to order the daily tonnage they needed from the union, which would have allocated certain vessels to deliver. The packers were firm in refusal of this, both from a legal and business standpoint.

The settlement was made on December 15 when the CIO backed down and a redistribution of vessels was made on a voluntary basis; agreement was made on tonnage limits and assurance against fluctuation of raw price, remaining at $32.50 per ton.

In November, 13 vessel owners brought suit against the CIO on basis of breach of contract. No decision was made in Superior Court, Long Beach, on this hearing date, or another December 8.

Market Supply Deemed Adequate

One of the points of agreement had to do with mixed loads of sardines and mackerel. It was decided catches of fares with 15 per cent of mackerel were considered mixed fish. On the other hand, if mackerel catches contained more than 25 per cent of sardines, this too, was to be considered mixed fish. Sale price in either case was a matter of negotiation between fishermen and canner.

When fishing stopped November 8 the southern district had processed 1,286,775 cases. With such small allowance tonnage for the pits, canners were processing far beyond the legal 13½ cases to the ton, the average being from 18 to 20 cases.

The situation, when fishing was resumed, was rather paradoxical. Packers considered the pack to the end of October for both districts, 2,336,871 cases, was about the limit they could expect to sell, considering the restricted condition of the export market. Even the hitherto lucrative Philippine market was announced restricted for the year of 1950; starting December 1 to be cut to 50 per cent in dollar value of the 1948 imports.

Prices As Low As $3 Per Case

One thing that started the 1949-50 season off well was that a British buying commission had completely cleared out all stocks of sardines in mid-summer; therefore warehouse floors were empty. The increased catch at Monterey and San Francisco, started as it did August 1, wiped out to a large extent this advantage because, with the northern district's traditional export markets so restricted, the domestic market was well taken care of when Southern California's season opened.

Showing a radical drop, the preseason quotations by Southern California packers to the trade were: Talls, $4.50; Ovals, $6.50. This dropped almost immediately to $4 and $6, and there were many quotations under this; it was reported as low as $3.00, talls.

With nearly six weeks of no packing—or very little—stocks of canned sardines largely dissipated and when the year ended, such stocks as were in packers' hands were firmly held and increased price quotations were expected in the early new year.

Disaster at sea laid a comparatively light hand on the northern California sardine fleet during the year.

The $100,000 purse seiner *Petrina F.*, skippered by Frank Flores, fishing off Morro Bay, out of Monterey, capsized in December, but her crew was saved.

During the same month the purse seiner *King Phillip*, A. Girolamo, Monterey, managing partner, was blown up on the beach, and badly damaged. She was towed to San Francisco for repairs.

Death took its toll among the leaders of the California sardine fishery during the year. In May, E. M. Darrimon, president of Red Rock Fisheries, Pt. San Pablo, former vice-president of Parrott & Co., president of the San Diego Packing Co., and head of E. M. Darrimon & Co. canned food brokerage house in Los Angeles, died.

In February the Pacific Coast fish industry was shocked to learn of the death of Angelo Lucido, 53, president and one of the founders of the San Carlos Canning Co., Monterey, one of the world's largest fish canneries.

The California Packing Corp. purchased the eight-story steel and concrete building formerly occupied by Butler Bros. on Howard St., from Fremont to Beale, in San Francisco. Calpak President R. L. Pratt said that the company's offices, now occupying five locations, will be consolidated in one building.

Frank Leard, managing partner in the Peninsula Packing Co., and the Custom House Packing Co., Monterey, accepted an executive position with Wilbur-Ellis Co., San Francisco.

His duties at Monterey were taken over by Bernard H. "Barney" Kitchens, formerly of the canned goods department of Wibur-Ellis, and well known in the canned fish business.

Wilbur-Ellis Co., San Francisco, purchased the sardine reduction plant of Thomas Fisheries, Moss Landing, and the operation is now known as Wilbur-Ellis Co., Moss Landing Plant.

The Ace Packing Co., Moss Landing, was taken over by Joe Olivieri, for many years manager for A. Paladini, Inc., in the Monterey Bay area, and a group of Santa Cruz fishermen, and was reorganized as the Santa Cruz Canning Co. Mr. Olivieri will continue with his duties for Paladini. Superintendent of the plant and vice-president of the company is Frank Verga, well known in the Monterey fishing business.

O. J. Haber, formerly with the Farallone Packing Co., San Francisco, and Frank Carroll, both well known in northern California's fish processing industry, reorganized the Princeton Packers at Princeton, near Half Moon Bay, and are operating the plant under the name of Princeton Industries.

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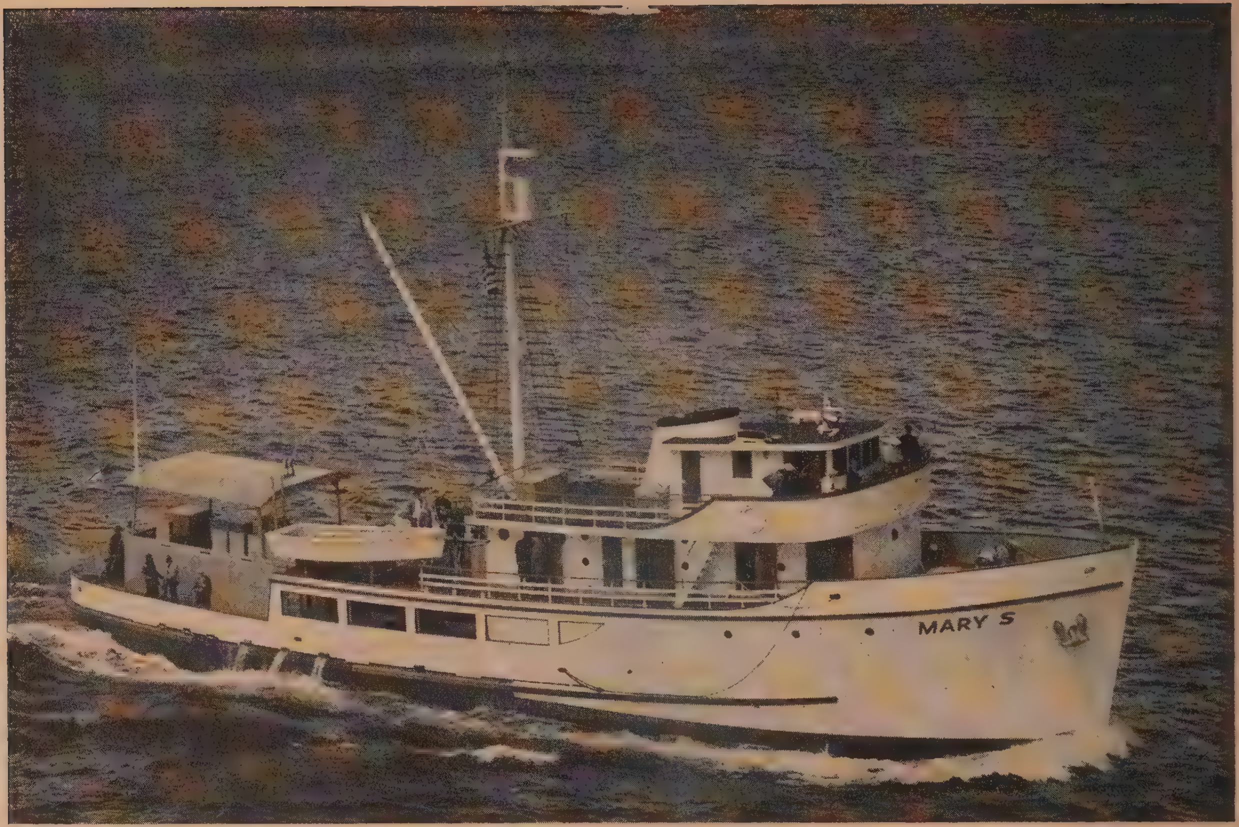


MARY S—ONE OF THE NOTABLE NEW CLIPPERS OF 1949

This 109' tuna vessel went to work in the summer of 1949, fresh from the yard of the J. M. Martinac Shipbuilding Corporation. She is the property of Capt. Manuel Sousa and his associates, who include his sons Frank and George, fishing with him on the vessel, and Manuel Jr., who fishes on *Courageous*, in which his father is also interested. *Mary S* carries a Superior main diesel of 615 hp., with twin 150-hp. Superior auxiliaries. Power is delivered to the wheel by a Monel shaft, turning in Goodrich rubber bearings. Pumps are all of Fairbanks-Morse manufacture, serving her all-brine fish refrigeration system, and she carries complete modern instrumentation, including a 1,000-fathom capacity Fathometer.

1949—Imports of Canned Bonito and Yellowtail

Countries	Nov. '48 Pounds	Dec. '48 Pounds	Jan. '49 Pounds	February Pounds	March Pounds	April Pounds	May Pounds	June Pounds	July Pounds	August Pounds	September Pounds	October Pounds	Total Pounds
Chile	19,500	19,500	5,124	19,500	....	19,500	....	....	....	....	....	....	83,124
Peru	....	130,201	1,496,218	976,291	1,744,472	920,786	508,307	201,084	771,707	240,901	164,697	....	7,154,664
Turkey	....	241	....	....	....	....	241	....	....	....	....	....	482
Portugal	....	....	....	....	750	....	....	....	....	1,059	....	92,703	94,512
Spain	....	....	....	....	....	....	....	....	....	....	3,125	....	3,125
Totals	**19,500**	**149,942**	**1,501,342**	**995,791**	**1,745,222**	**940,286**	**508,548**	**201,084**	**771,707**	**241,960**	**167,822**	**92,703**	**7,335,907**

1949—Imports of Fresh and Frozen Tuna—1949

Countries	Nov. '48 Pounds	Dec. '48 Pounds	Jan. '49 Pounds	February Pounds	March Pounds	April Pounds	May Pounds	June Pounds	July Pounds	August Pounds	September Pounds	October Pounds	Total Pounds
Canada	24,000	....	299,000	....	....	....	....	....	15,285	280,762	232,899	387,828	1,239,774
Costa Rica	676,951	....	266,805	258,842	1,260,855	314,817	556,953	829,997	1,543,129	496,585	885,256	968,552	8,058,742
Ecuador	1,003,000	....	....	....	....	....	....	....	....	226,000	....	800,000	2,029,000
Japan	291,810	84,825	....	424	....	....	....	....	62,106	416,723	2,360,045	....	3,215,933
Peru	132,276	66,135	264,552	22,046	110,230	....	....	52,895	....	429,746	341,636	303,235	1,722,751
Mexico	....	....	....	....	....	....	8,000	....	466,000	1,262,292	242,895	10,911	1,990,098
Bahamas	....	....	....	....	....	....	....	1,000	....	....	....	....	1,000
Canal Zone	....	....	....	....	....	....	....	....	250,000	....	436,000	270,000	956,000
Columbia	....	....	....	....	....	....	....	....	50,000	....	....	....	50,000
Norway	....	....	....	....	....	....	....	....	....	....	....	10,996	10,996
Totals	**2,128,037**	**150,960**	**830,357**	**281,312**	**1,371,085**	**314,817**	**564,953**	**883,892**	**2,386,520**	**3,112,108**	**4,498,731**	**2,751,522**	**19,274,294**

MACKEREL

California canned mackerel ranks fourth—behind salmon, tuna and sardines—as America's largest pack of canned seafood.

Pacific mackerel canning accounts for approximately 80% of the United States' canned mackerel pack.

The Los Angeles-Long Beach-Newport district's 1949 pack of mackerel was slightly ahead of the previous year. The product was canned without a break during the year.

With a steady demand for canned mackerel all year, packers came to the end of 1949 with no large carryover. Stocks were being firmly held, with wholesale prices on the upgrade. Most of the product was in 1-lb. talls, with some specialty packs, particularly by Seaside Fisheries, Long Beach which, for years has offered a skinless-boneless mackerel fillet in glass.

The two species, Pacific and Jack, were both in demand, the year ending with Pacific at $5.75 to $6.00; Jack at $6.25 to $6.50, basis 1-lb. talls, 48. It was confidently anticipated that higher quotations would be made after the first of the new year.

So far as the raw price was concerned, the late summer to winter season of heavy deliveries saw a decrease from the year opening of $50-60, Jack and Pacific. By December raw prices fluctuated, but the general scale was $40-50, but with scoopers at Newport Beach reported to have sold as low as $25 per ton.

Mackerel packing was at its lowest ebb in April and May. The month of January saw 2,585 tons delivered, with 50,813 cases packed. Tonnage then declined until the end of May, picked up slightly in June; then leapt ahead increasingly until end of October; fell again in November and was quite small in December

California Canned Mackerel--1926-1949

Year	San Pedro District			San Diego District			Monterey	Grand Total (Full Cases)
	*1-lb. Cans (full cases)	†Other Size Cans (full cases)	Total (full cases)	1-lb. Cans (full cases)	Other Size Cans (full cases)	Total (full cases)	Total (full cases) ‡	
1926		268	268	4	5	9		277
1927	10,725		10,725		118	118		10,843
1928	357,136	2,337	359,473	25,110	239	25,349	1,030	385,852
1929	477,570	27,006	504,576	86,246	3,720	89,966	1,476	595,572
1930	122,870		122,870	4,250	39	4,289	117	127,276
1931	100,912		100,912	305		305		101,217
1932	84,385	4,058	88,443	184		184		88,627
1933	578,902	38,163	617,065	100,883	4,729	105,612	7,722	730,309
1934	942,507	126,538	1,069,045	115,654	12,303	127,957	61,083	1,257,085
1935	1,409,922	195,771	1,605,693	105,081	4,436	109,517	46,026	1,761,236
1936	990,360	60,250	1,050,610	113,075	9,533	122,608	55,139	1,228,357
1937	727,656	14,309	741,965	30,482	3,011	33,493	13,856	789,314
1938	828,284	71,741	900.025	44,856	3,125	47,981	5,643	958,649
1939	869,474	20,323	889,797	73,608	1,247	74,855	2,604	967,256
1940	1,311,778	47,304	1,359,082	39,467	768	40,235	142	1,399,459
1941	811.467	6.096	817,563	19,484		19,484	6.700	843.747
1942	579,053	9,479	588,532	17,456	3,663	21,119	4,539	614,190
1943	827,040		827,040	4,255		4,255	7,997	839,312
1944	970,772	13,324	984,096	266		266	2,060	986,422
1945	584,318	1,658	585,976				3,641	589,617
1946	602.458	33,772	636,230				80,438	716.668
1947	1,298,820	58,589	1,357,409				164,790	1,522.199
1948	767,662	43,668	811,330	224	101	325	158,991	970,646
1949	867,192		867,192				48,224	915,416

* Practically all in 1-lb. Talls. † Largely ½-lb. Flats. ‡ Includes San Francisco.
NOTE:—Pacific Mackerel and Jack Mackerel are combined in this table.

1949—California Pacific Mackerel Pack—1949

San Pedro			Monterey District		TOTAL CALIFORNIA	
Pounds Received	Cases Canned	Months	Pounds Received	Cases Canned	Pounds Received	Cases Canned
4,679,300	45,278	January	1,326,123	13,851	6,005,423	59,129
2,449,700	25,254	February			2,449,700	25,254
131,300	4,203	March			131,300	4,203
2,140	342	April			2,140	342
81,942	776	May			81,942	776
951,965	8,749	June			951,965	8,749
5,066,904	43,247	July			5,066,904	43,247
9,161,127	88,575	August			9,161,127	88,575
12,799,347	133,622	September			12,799,347	133,622
10,625,385	128,910	October			10,625,385	128,910
6,233,191	67,715	November		115	6,233,191	67,830
3,276,000	37,943	December*			3,276,000	37,943
55,458,301	584,614	TOTALS	1,326,123	13,966	56,784,424	598,580

*December figures include Jack Mackerel.

"Dietetic Tuna" Appears

After several years of biochemical and nutritional research in the Van Camp laboratories at Terminal Island, under Dr. Ernst Geiger, Van Camp announced and immediately began national distribution of "Dietetic Tuna" under the "Chicken of the Sea" label, in December.

Packing of this specialized product, which was accepted by the Council of Foods and Nutrition of the American Medical Association and which conformed to Section 403 (j) of the Federal Pure Food, Drug and Cosmetic act, was expected to materially increase the sale of canned tuna, opening up a new market for thousands whose dietary restrictions limited food selection.

Looking ahead to 1950 the consolidation of two major tuna-packing concerns at San Diego into the Westgate-Sun Harbor Company is also expected to contribute to a greater exploitation of canned tuna in the national sales field. The new company, formed in December, announced it would put the well known Westgate "Breast o' Chicken" label on a complete national advertising and sales basis.

1949—California Jack Mackerel Pack—1949

Months	San Pedro		Monterey District		TOTAL CALIFORNIA	
	Pounds Received	Cases Canned	Pounds Received	Cases Canned	Pounds Received	Cases Canned
January						
February						
March	2,651,350	23,746			2,651,350	23,746
April	784,500	7,370			784,500	7,370
May	554,500	584			554,500	584
June	76,200	606			76,200	606
July	2,650,660	16,597			2,650,660	16,597
August	4,677,076	38,059			4,677,076	38,059
September	4,832,565	32,852	1,533,110	17,546	6,365,675	50,398
October	14,440,914	133,948	1,247,286	12,236	15,688,200	146,184
November	3,314,275	28,816	327,942	4,476	3,642,217	33,292
December						
TOTALS	33,982,040	282,578	3,108,338	34,258	37,090,378	316,836

NOTE—December Jack Mackerel figures included with Pacific Mackerel.

THE WORLD'S FINEST CANNED ABALONE

Fancy Selected Deep Sea Shell Fish--Packed Where Caught

Salt and Water Added

CALMEX

BRAND

ABALONE

NET WEIGHT 1 LB. or 454 GRAMS

●

OTHER BRANDS

"OCEAN GARDEN"

●

"PROMAR"

●

"CALSEA"

PRODUCT OF MEXICO

by

PESQUERA DEL PACIFICO. S. de R. L.

ENSENADA, B. CFA. MEXICO

World Distributors

MARINE PRODUCTS COMPANY

SAN DIEGO, U. S. A.

MEXICO
PACIFIC FISHERIES

Rocketing rise of its shrimp industry has attracted to the Pacific Fisheries of Mexico the attention of the seafood distributive trade and the marine supply business of the United States.

Although Shrimp from the Gulf of California is the spectacular feature today, there are other fisheries along the Pacific coastline of Mexico which are among the rich but latent resources of that Republic.

The Pacific fisheries of Mexico received millions of U. S. dollars for its fishery products during 1949 and, in return much of them came back across the international border in exchange for new and used vessels to augment the fishing and trawling fleets, and for every type of marine equipment from propulsion engines to electronics.

Principal of these products was shrimp, crossing the border at U. S. customs ports of entry in Arizona and California, frozen and fresh, to be speeded to markets by rail and refrigerated truck to practically every part of the United States.

The total shrimp exported to this country in 1949 from the Gulf of California (Gulf of Mexico excluded) was 17,914,319 lbs., against 14,441,622 lbs. in 1948, an increase of 3,500,000 lbs. It was the greatest year in the history of this sensationally growing industry centering in the Gulf of California.

Abalone, caught mainly off the western coast of Lower California and adjacent islands, showed an increase of 500,000 lbs. over 1948. The latter figure is total, whereas in 1949 an additional 205,155 lbs. came across the border dried. Thus actually the abalone production of 1949 was 700,000 lbs. above 1948.

Lobsters and Clams Off

Spiny lobsters, also from Lower California, showed a slight drop from the previous year, to 1,738,331 lbs. against 1,969,143 lbs. One reason for this is perhaps the fact that last year it was required by Mexican law for lobsters to cross the border cooked, which would increase the net weight and possibly bring the total beyond 1948.

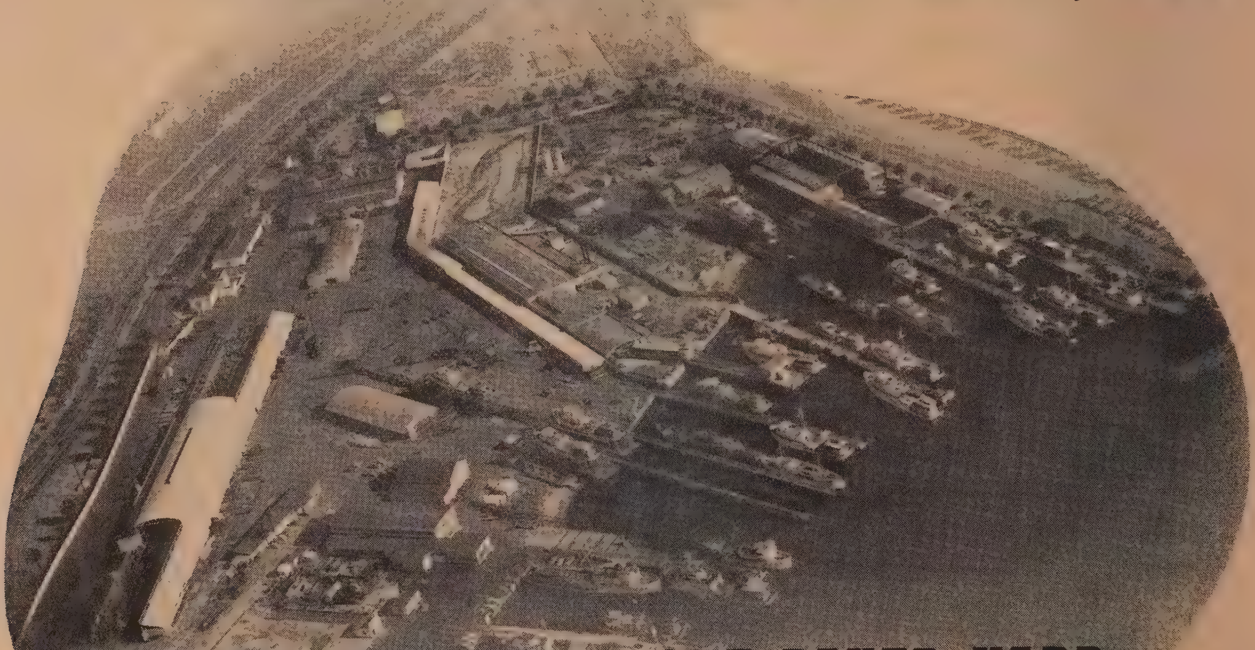
Clams, the Pismo variety, from Lower California's west coast also declined. This war-boomed industry which in one year sent enough clams to American processors to produce 193,000 cases of ½s, 48, has ceased to

MEXICAN PACIFIC SHRIMP FREEZING PLANTS

	Brands	Daily Freezing Capacity, Tons	U. S. Importer
Guaymas, Sonora			
Fomento Maritimo, S.A.	"Cortez"		Rubenstein & Sons Produce, Inc.
	"Amigos"	10	Dallas, Texas
Cia. de Productos Congelados, S.A.	"Southern Seas"	20	Wilbur Ellis Co.
Cia. de Productos Marinos de Guaymas, S.A.	"Ocean Garden"	15	Marine Products Co.
Mariscos Congelados del Pacifico, S.A.	"Miramar"	10	Marine Products Co.
Pesquera E Industrializadora de Guaymas	"Guay-Mex"	10	Rubenstein & Sons Produce, Inc.
	"Clear Blue"		
	"Lolita"		
Pesquera E Industrial del Pacifico, S. A. de C. V.	"Lolita"	2½	Rubenstein & Sons Produce, Inc.
	"Clear Blue"		
	"Guay-Mex"		
Mazatlan, Sinaloa			
Cia. Refrigeradora del Noroeste, S.A.	"Reno"	20	Stamm-Schulman Co.
Pesquera de Mazatlan, S.A. (To be constructed in 1950)		10	
La Reforma, Sinaloa			
Cia. de Productos Congelados, S.A.	"Southern Seas"	10	Wilbur Ellis Co.
El Dorado, Sinaloa			
Hacienda de Redo	"Ocean Garden"	5	Marine Products Co.
El Golfo, Sonora			
Productos Congelados Santa Clara, S.A.	"Ocean Garden"	5	Marine Products Co.
Santa Rosalia, Baja California			
Cia. Maritima y Pesquera, S.C.L.	"Astro"		Stamm-Schulman Co.
	"Santa Rosalia"	10	
Topolobampo, Sinaloa			
Pesquera de Topolobampo, S. de R.L.	"Ocean Garden"	20	Marine Products Co.

Take advantage of National Steel's shipyard "know-how" and modern facilities to

MAKE MONEY ON THE BEACH, TOO!



EVERYTHING IN ONE PAVED YARD SAVES YOU TIME AND MONEY

WHETHER you need a new boat or repairs on your present one, come to the MOST MODERN AND COMPLETELY EQUIPPED shipyard on the Pacific Coast.

- 7 marine railways
- 9 outfitting docks
- San Diego's only galvanizing plant
- The west's most modern foundry
- Complete woodworking shop
- Experienced engineering staff
- Complete machine shop
- Fully equipped electric and welding shops
- Complete refrigeration maintenance and engineering
- Wet or dry sandblasting facilities
- Huge pattern shop
- Steel fabricating shop

NATIONAL STEEL AND ★ SHIPBUILDING
CORPORATION
HARBOR DRIVE AT 28TH • FRANKLIN 9-8065 • SAN DIEGO 12

be profitable. Only a few hundred cases were processed in 1949, this at a San Diego cannery.

In 1949 a total of 171,787 lbs. came in against 251,811 lbs. in 1948. Apart from the tonnage canned, the balance went to U. S. fresh fish markets, and some for frozen bait, both for commercial and sport fishing.

Totuava Imports Decline

The great totuava—Mexican sea bass—industry is steadily losing ground. Caught by millions of pounds in earlier years, the catch, mostly from the upper waters of the Gulf of California, was 1,925,161 lbs. in 1948 and dropped to 1,591,446 lbs. last year.

The greatest decline for the Mexican Pacific industry in 1949 was with shark and sea bass livers. While there was talk that the high-priced markets of previous years had threatened depletion of the shark poulation, the decline, 957,948 lbs., last year against 1,591,446 lbs. in 1948 was principally due to the collapse of the U. S. liver market.

In 1948 it was estimated the Mexican liver processors and exporters profited to the extent of $1,359,053, practically $1 per lb. However, due to world competition for the lucrative U. S. trade, the liver auction throughout was never high except possibly during the early part of the year, and it collapsed entirely during the latter part.

Mexico exports to this country many types of fish, but it is not the purpose here to classify them all, but rather to deal with the most important from the standpoint of U. S. dollars earned. An important item, from a U. S. Customs viewpoint is "unclassified", which includes many fresh fishes as well as dried and salted. The inclusive classification

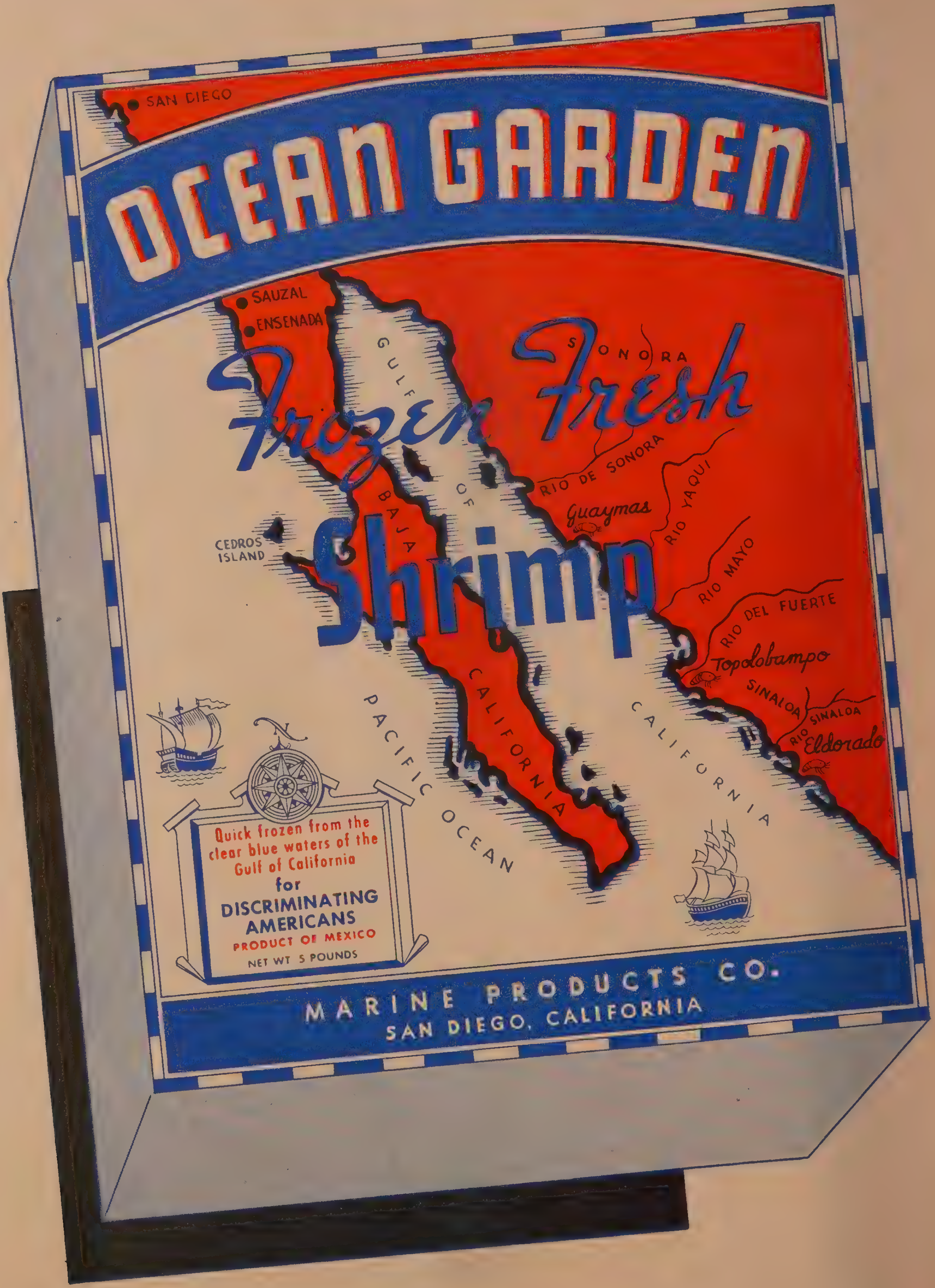
From Shrimp Vessel Into Freezing Pans

These pictures and those on a following page show six steps in the progress of shrimp from Mexico's Gulf of California to packages for the American consumer.

Top view in this panel shows how headed shrimp are stowed in the fishing vessel in crushed ice, always chilled icy-cold.

Second picture shows women packing exact weight of shrimp tails into stainless steel pans preparatory to the freezing process.

Bottom picture shows how weighed pans of shrimp are filled with water before freezing as a protection against drying in freezer.


OCEAN GARDEN
Frozen Fresh
Shrimp
SAN DIEGO
SAUZAL
ENSENADA
CEDROS ISLAND
GULF OF CALIFORNIA
BAJA CALIFORNIA
PACIFIC OCEAN
SONORA
RIO DE SONORA
Guaymas
RIO YAQUI
RIO MAYO
RIO DEL FUERTE
Topolobampo
SINALOA
RIO SINALOA
Eldorado
Quick frozen from the clear blue waters of the Gulf of California
for
DISCRIMINATING AMERICANS
PRODUCT OF MEXICO
NET WT 5 POUNDS
MARINE PRODUCTS CO.
SAN DIEGO, CALIFORNIA

in 1948 was 1,290,643 lbs., valued at $108,012. The same entry for 1949 was 606,693 lbs., although there is no way of telling whether this comparison is correct, and some fish exports were included in 1948, but not tagged in 1949.

Canned Production Rises

Fish canning on the West Coast continues to center at the upper part of the Lower California peninsula, at Sauzal, Ensenada, Cedros Island. The pack of sardines, mackerel, yellowtail and shrimp is for Mexican domestic consumption. However, the abalone production, mostly in 1-lb. talls, packed whole, crosses the international border in bond for export, mainly to the Orient. There is some U. S. distribution of this product.

Dried abalone, also from Lower California, goes to the Chinese trade for soup. Marine Products Company, San Diego, is said to be the principal world distributor for canned abalone.

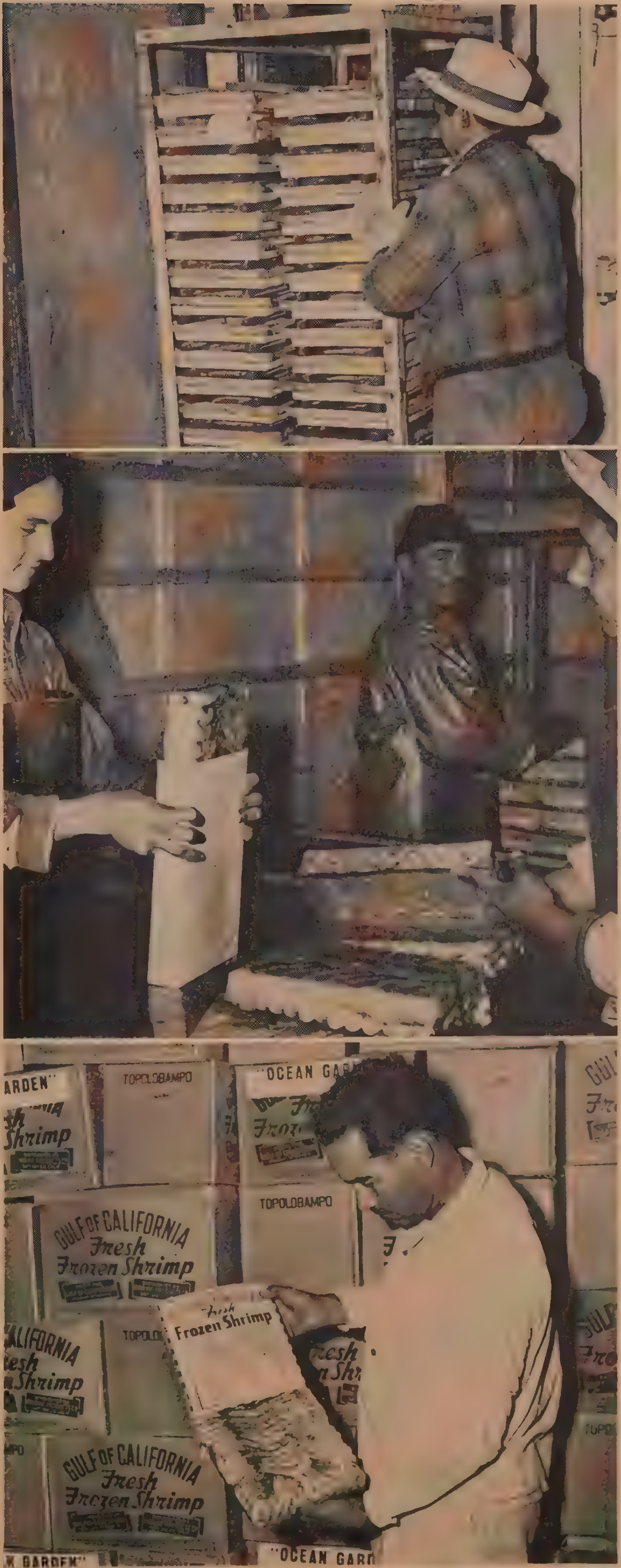
Shrimp Industry Booming

Of the greatest importance during 1949 was the tremendous development of the green shrimp industry, and the awakening of progressive Mexican operators to exploiting the entire U. S. market instead of, as formerly, relying on the West Coast.

Considerable attention was being made to exploiting brand names for the packaged 5-lb. and 12-oz. shrimp. Extensive advertising programs were backing this up, and the fine quality of the product, caught in the cool clean waters of the Sea of Cortes was finding acceptance by consumers wherever offered.

Consumer Packages Introduced

While formerly the 5-lb. frozen package was standard procedure,



Into Freezer Tunnel Then Into Packages

A rack loaded with stainless steel pans filled with shrimp is being pushed into the freezing tunnel of a modern freezing plant in the top picture in this panel showing Mexican shrimp processing.

Second picture shows how the blocks of frozen shrimp are removed from the pans after freezing has been completed and the racks of pans are removed from the freezing tunnel. Blocks are then slipped into cartons for the consumer package.

Final picture shows superintendent of a Mexican freezer inspecting the finished product, a 5-pound block of shrimp and its gayly printed waxed carton. Ten of these 5-pound cartons are packed in the master cartons shown in the background.

MANNS
ENGINEERED REFRIGERATION

The engineering skill and experience that has contributed so greatly to the development and prosperity of the
GULF OF CALIFORNIA
shrimp, shark and fresh fish industry

PESQUERA DE TOPOLOBAMPO S. DE R. L.

Pesquera de Topolobampo, on San Carlos Bay, Gulf of California, probably the world's largest shrimp freezing plant. The refrigeration system has been periodically increased by R. E. Manns Co. since its start. This year we have again enlarged this refrigeration plant and greatly increased its freezing capacity.

- FROM MEXICO to CENTRAL and SOUTH AMERICA

— AND —

Along the Pacific Coast from
SAN DIEGO to the NORTHWEST

- RALPH E. MANNS CO.
ENGINEERED REFRIGERATION

Is Making Profits for All Types of

FISHING VESSELS
CANNERIES
SHORE PLANTS

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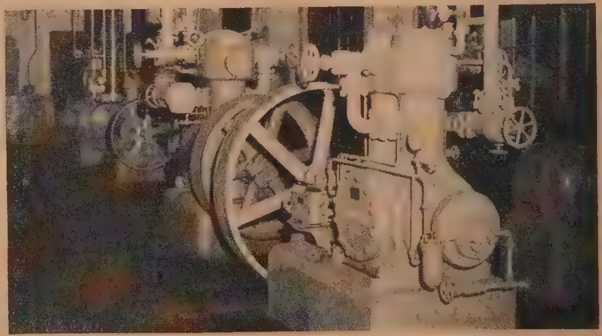


GUAYMAS: Productos Congelados, S. A.

Ralph E. Manns has refrigerated the following:

Productos Marinos de Guaymas, S. A.
Productos Congeladados, S. A., Guaymas
Pesquera de Topolobampo, S. de R. L.
Refrigeradora del Noroeste, S. A.
Cia. Embotelladora de Culiacan, S. A. de C. V.
Corveceria del Pacifico, S. A., Mazatlan
Cerveceria Tecate, S. de R. L., Tecate
Empacadora de Conservas de Los Mochis
Marisco Congelados del Pacific, S. A.
Productos Congelados Santa Clara, S. A.
Haciendo del Redo
Pesquera y Industrializadora de Guaymas, S. A.
United Sugar Company, Etc.

Our staff of trained engineers and service men are available in Mexico, as in California, to work out your problems.

in addition, of course, to fresh shrimp rushed to adjacent markets in California, 1949 saw a strong bid for the housewife's trade by further development of the 12-oz. package, available in the cold storage cases of grocery stores.

Several other important developments were noted. Marine Products Company, the pioneer importer of green shrimp, was sold to Wilbur-Ellis Company, but its identity, as well as its "Ocean Garden" brand, remained intact, with L. K. Small remaining as president. Wilbur-Ellis has for some time been an important factor in U. S. distribution of Gulf of California shrimp, handling under the brand name of "Southern Seas" the product of Productos Congelados, S.A., Guaymas and La Reforma.

Another move of importance was made by another pioneer, Hector Ferreira. Resigning in 1948 as head of the great Pesquera de Topolobampo freezing plant at Topolobampo, Mr. Ferreira acquired that company's Guaymas plant, changing the name to Pesquera E. Industrializadora de Guaymas, S.A.

Here he made considerable improvements to the freezing plant and also installed a shrimp canning section. During 1949 he purchased the former Pacific Balboa Associates plant and changed the name to Pesquera E. Industrial del Pacifico, S.A. de C.V. There he installed automatic packaging machinery to handle a 12-oz. consumer package. Mr. Ferriera has four brands: "Guay-Mex," "Clearblue," "Lolita" and "Jumbled Jumbo." Distribution is countrywide. Rubenstein & Sons Produce, Inc., Dallas, Tex., is the U. S. importer.

Mexican Pacific Shrimp Exports to U.S.

Year	*Pounds*
1934	677,742
1935	1,574,372
1936	553,045
1937	2,059,126
1938	3,243,418
1939	3,797,945
1940	4,913,474
1941	3,116,518
1942	4,420,136
1943	5,864,624
1944	6,082,651
1945	7,875,367
1946	11,493,807
1947	10,728,074
1948	14,441,622
1949	17,914,319

MEXICAN SHRIMP FREEZER VESSELS

Vessel	Headquarters	Company
Admiral Brenton	Guaymas, Sonora	Gayou & Corona
Martha Aurora	Guaymas, Sonora	Gayou & Corona
Mahoning	Guaymas, Sonora	Productos Congelados, S.A.
Mazatleca	Guaymas, Sonora	Productos Congelados, S.A.
General Villa	Guaymas, Sonora	Fomento Maritimo, S.A.
Santa Teresa	El Dorado, Sinaloa	Hacienda de Redo

New Banks Discovered

The great new shrimp banks discovered a couple of years ago in the northern waters of the Gulf, have held increasing interest from the operators. Most of the fresh shrimp, estimated at 4,000,000 lbs. in 1949 came from this area, crossing the border at San Luis, Ariz., and Calexico, Calif., in refrigerated trucks. Improved roads over the 75 miles to the Gulf has facilitated this operation.

In early 1950, however, the frozen shrimp industry will invade this northern section. A new 5-ton daily capacity plant has been engineered and equipped by R. E. Manns Company for Productos Congelados de Santa Clara, S.A., at El Gulfo. Marine Products Company's "Ocean Garden" brand is to be produced.

New Plants Are Equipped

At the southern end of the known shrimp fishery, Mazatlan, a new shrimp freezer is to be constructed in 1950 for Pesquera de Mazatlan, S.A., with a daily capacity of 10 tons. Across the Gulf on the Lower California side, at Santa Rosalia, the Cia. Maritima y Pesquera, S.C.L., with a Kohlenberger-engineered plant is in operation. Importer is Stamm-Schulman Company, Los Angeles, and brand names are "Astro" and "Santa Rosalia."

At Guaymas, Fomento Maritimo, S.A., headed by Gen. Sylvano Perez Ramos, was planning considerable improvements and enlargement during 1950. Brand names are "Cortez" and "Amigos," and the importer is Rubenstein & Sons. A change during last year was in distribution of the products of Mariscos Comgelados del Pacific, S.A., headed by Louis Camillo. Marine Products now handle and the brand is "Miramar."

Pesquera de Topolobampo, greatest of the shrimp freezers, was enlarged during 1949, increasing its freezing capacity from 20 to 25 tons daily. Its shrimp-canning plant was improved and modernized with automatic packers and stainless steel equipment. This plant, owned by Gen. A. L. Rodriguez and associates, and managed by Jose Gutierrez, with Eduardo Rodriguez as chief engineer, produces "Ocean Garden" frozen shrimp.

12 Freezers in Operation

The original freezer of Productos Marinos de Guaymas, installed in 1940 at Guaymas, was also improved in 1949, with the addition of more diesel power and freezing capacity, stepping up output from 10 to 15 tons.

With the beginning of 1950 there were 12 freezers from El Gulfo at Mazatlan with six of them centering at Guaymas and the second Mazatlan plant to be started this year, making 13. The estimated freezing capacity of these combined plants is 150 tons daily.

Freezing of the shrimp to 35 minus temperature in the Standard 5-lb. block, requires 400 stainless steel pans per ton. The total of these pans in use in the Gulf of California is estimated in excess of 60,000.

Three plants were processing the 12-oz. package at the end of 1949. In addition Marine Products Company had its own equipment at San Diego for producing the consumer package.

Freezerships Come into Use

Use of freezer vessels, supplied by feeder trawlers, was increasing in the Gulf. Gayou & Corona had two in operation, *Admiral Brenton* and *Martha Aurora,* out of Guaymas. Productos Congelados had the *Mahoning;* Fomento Maritimo had two, *Mazatleca* and *General Villa;* also out of Guaymas. At El Dorado, Sin., Hacienda de Redo had the *Santa Teresa.*

During 1950 the trawling fleets

GUAYMEX
TRADE MARK
(Y-MEX)
(CAMARON FRESCO CONGELADO)

GUAYMAS
"WORLD FAMOUS
FISHERMEN'S PARADISE"

"New in California, but already tops in the U.S.A."

Distributed By
RUBENSTEIN & SONS PRODUCE, INC.
DALLAS, TEXAS

West Coast Distributor
LOS ANGELES PROVISION CO.
LOS ANGELES, CALIF.
119 SOUTH CENTRAL AVENUE
MUTUAL 6665

Fresh

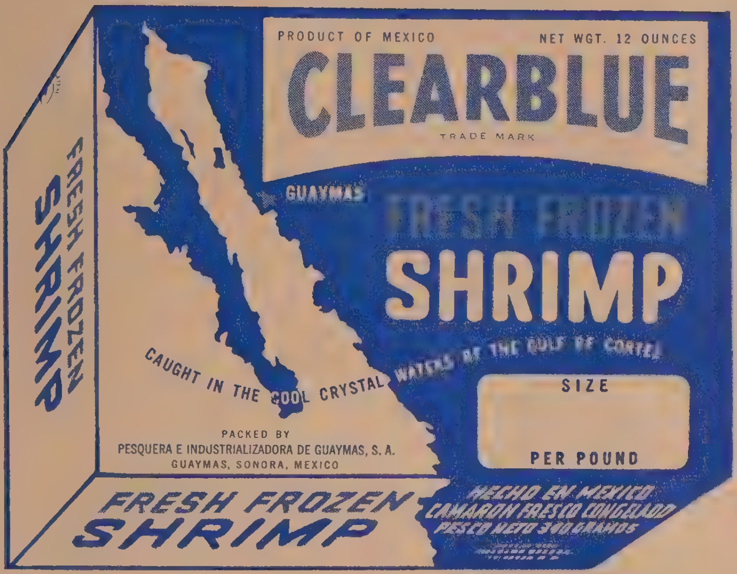
FROZEN SHRIMP

FROM THE CLEAR BLUE WATERS OF THE GULF OF CALIFORNIA

PRODUCT OF MEXICO

Packed by
PESQUERA E INDUSTRIALIZADORA DE GUAYMAS, S. A.
GUAYMAS, SONORA, MEXICO

THREE BRANDS REPRESENTING THE WORLD'S FINEST FRESH FROZEN SHRIMP — caught from the cool crystal waters of the Gulf of California. Refrigerated, processed and handled by the most modern scientific methods


PRODUCT OF MEXICO
NET WGT. 12 OUNCES
CLEARBLUE
TRADE MARK
GUAYMAS
FRESH FROZEN
SHRIMP
CAUGHT IN THE COOL CRYSTAL WATERS OF THE GULF OF CORTEZ
SIZE
PER POUND
PACKED BY
PESQUERA E INDUSTRIALIZADORA DE GUAYMAS, S. A.
GUAYMAS, SONORA, MEXICO
FRESH FROZEN SHRIMP
HECHO EN MEXICO
CAMARON FRESCO CONGELADO
PESO NETO 340 GRAMOS
FRESH FROZEN SHRIMP

"New on the Pacific Coast

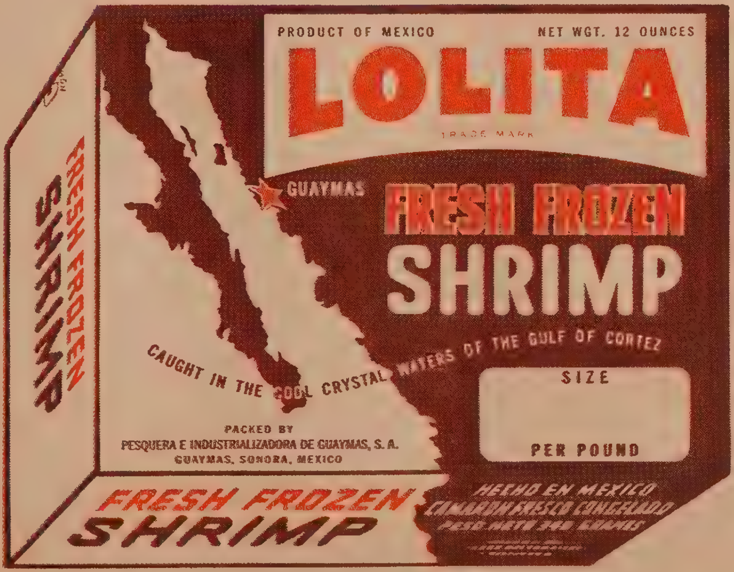
---but already Tops in the U. S. A."

Distributed by

RUBENSTEIN & SONS PRODUCE, INC.
Dallas, Texas

West Coast Distributor

LOS ANGELES PROVISION CO.
Los Angeles
119 South Central
California
Mutual 6665


PRODUCT OF MEXICO
NET WGT. 12 OUNCES
LOLITA
TRADE MARK
GUAYMAS
FRESH FROZEN
SHRIMP
CAUGHT IN THE COOL CRYSTAL WATERS OF THE GULF OF CORTEZ
SIZE
PER POUND
PACKED BY
PESQUERA E INDUSTRIALIZADORA DE GUAYMAS, S. A.
GUAYMAS, SONORA, MEXICO
FRESH FROZEN SHRIMP
HECHO EN MEXICO
CAMARON FRESCO CONGELADO
PESO NETO 340 GRAMOS
FRESH FROZEN SHRIMP

"CLEARBLUE"
"LOLITA"
"GUAYMEX"
Brands are packed in
12-oz. cartons

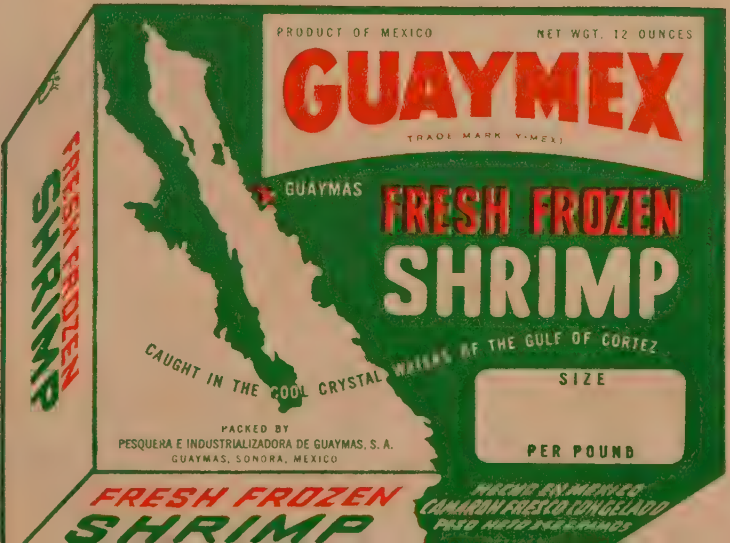
"GUAYMEX"
in 5 lb. and 12 oz.
cartons

Packed by

PESQUERA E INDUSTRIALIZADORA

DE GUAYMAS, S. A.

GUAYMAS
SONORA
MEXICO


PRODUCT OF MEXICO
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CAUGHT IN THE COOL CRYSTAL WATERS OF THE GULF OF CORTEZ
SIZE
PER POUND
PACKED BY
PESQUERA E INDUSTRIALIZADORA DE GUAYMAS, S. A.
GUAYMAS, SONORA, MEXICO
FRESH FROZEN SHRIMP
HECHO EN MEXICO
CAMARON FRESCO CONGELADO
FRESH FROZEN SHRIMP

were increased tremendously and it was estimated that over 500 vessels were engaged in the fishery for shrimp. The National Steel & Shipbuilding Corporation, San Diego, built five new steel trawlers, 52′ long, for Pesquera de Topolobampo, while other operators scoured the Pacific Coast from San Diego to Seattle for suitable vessels to add to their fleets. Use of electronics, radiotelephones, sonic depth finders, etc., increased during the year.

The Instituto de Pesca del Pacifico, founded at Guaymas two years ago, continued under the direction of Rene Nunes S. to carry out its long-range program of research in the Gulf of California, aiming its efforts principally at the shrimp industry to discover the potential safe yield of known beds, both in the long chain of shallow bays of the western mainland, and in the deeper waters of the Gulf, to uncover new sources of supply and eventually, as a result of research, to determine what conservation measures are necessary to perpetuate the rich fishery.

Mexican Shrimp Industry Modernly Equipped in U. S.

As a purely Mexican enterprise, the Pacific fisheries of Mexico is just a decade old. However, the fishery resources in the Gulf of California have been exploited in three phases:

First, when American operators around 1921 discovered what the Indians had known for hundreds of years, that the waters were rich with shrimp and other sea foods.

Second, the period of ruthless exploitation by the Japanese, from 1937 to 1939.

Finally, the return of the fishery to Mexicans, who have during the past 10 years adopted American methods of fishing, production and merchandising.

From the start of this modern decade, progressive and far-seeing Mexican capitalists and operators have relied on American know-how and equipment to develop their multi-million dollar fishery. The first freezer of Productos Marinos de Guaymas, started in 1940, was engineered and built by Americans.

So too, was the opportunity to merchandise products, particularly green, headless shrimp, with its complex problems of finance, offered by American operators, thus starting a momentum which has steadily increased since. Large credit for this must go to L. K. Small of Marine Products Company, whose courage and foresight, coupled with his friendship with Gen. Abelardo L. Rodriguez, who wrested control from the Japanese and returned it to his own countrymen, in 1940 set the industry on a sound basis.

Large Investment Made In Equipping Modern Fleet

Since that time there has never been any hesitancy by Mexican operators to spend the dollars their products were earning in the U. S. in exchange for American equipment to build new freezer plants, canneries, fishing vessels and marine equipment of any kind.

The year of 1949 saw the greatest return of these dollars, and 1950 promises to continue what is a fullest expression of the "Good Neighbor" policy. Scores of new and used boats were bought along the Pacific Coast during 1949. Use of freezer vessels, representing huge investments for refrigeration, marine equipment and electronics, was increasing.

It was estimated the shrimp trawler fleet at the close of 1949 was no less than 500 vessels, all well powered and equipped. New shrimp freezer plants were either constructed, were being built or contemplated in 1950. Practically all those already in existence were enlarged and modernized during last year.

Procedures of all hand labor of previous years was changing to automatic methods in the freezer plants. Canning of shrimp increased last year, requiring more American equipment; fish-packing plants in Lower California were improved, and packs increased.

Industry Is Developed On Modern Basis

Use of electronics in the fleets is a highlight of the present operation: radiotelephones are practically must equipment on all trawlers of any size; sonic depth finders are increasing; so are direction finders and automatic controls.

The trawler fleets require large

Lower California Fish Canneries

Company—	Location	Products
Pesquera del Pacifico, S. de R. L. Francisco A. Morales, Jr., Gen. Mgr.	Sauzal	Sardines Mackerel Meal and Oil
Pesquera del Pacifico, S. de R. L. Luis Ojeda Mielson, Plant Mgr.	Cedros Island	Abalone
Cia. Maritima Industrial y Mercantil, S. A. Francisco A. Morales, Jr., Gen. Mgr. Manuel Murillo, Plant Mgr.	Ensenada (Plant at Turtle Bay)	Abalone
La Industrial de Ensenada Luis Salazar, Gen. Mgr.	Ensenada	Mackerel Sardines
Pesquera Peninsular, S de R. L. Roberto Rivas Cordova, Mgr.	Ensenada	Abalone
Empacadora del Pacifico, S. A. Francisco Alvarez, Owner-Mgr.	Ensenada	Abalone *Tuna
Empacadora de Baja California, S de R. L. Ernesto Ruffo, Owner-Mgr.	Ensenada	Abalone Clams
Cia. Productos Marinos Romera Cabral Jimenez, Gen. Mgr.	Cape San Lucas	Tuna

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1949—FISHERY PRODUCTS IMPORTED FROM MEXICO—1949

(Entered through California and Arizona.)

Species	Nov., 1948 Pounds	Dec., 1948 Pounds	Jan., 1949 Pounds	February Pounds	March Pounds	April Pounds	May Pounds	June Pounds	July Pounds	August Pounds	September Pounds	October Pounds	Grand Total Pounds
Fish:													
Barracuda							5,097						5,097
Cabrillo		2,263				1,788							4,051
Corbina	2,354	7,983		988	51,394	58,798	1,583	216		8,173			131,489
Mackerel, canned	153,000			26,500									179,500
Red Snapper										2,285			2,285
Sea Bass, White						4,706							4,706
Sardines, canned	211,900			498,440	180,000								890,340
Totuava	70,869	42,597	11,669	173,787	761,842	6,514	333,006	63,752	18,838	4,290		19,048	1,506,212
Tuna, Albacore										485,292			485,292
Unclassified Tuna	1,027,000											10,460	1,037,460
Frozen											204,000	270,000	474,000
Unclassified										96[2]			
Fresh and Frozen	22,274	79,229	36,436	14,241	27,960	43,237	51,385	41,952	96,172	130,340	46,411	17,912	607,549
Dried, Salted	3,957	2,075				708	2,899		1,583		1,241		12,463
Dried							837						837
Total	1,491,354	134,147	48,105	713,956	1,021,196	115,751	394,807	105,920	116,593	630,380	251,652	317,420	5,341,281
Shellfish:													
Abalone, canned	349,220	176,736	196,416	463,680	164,480	153,600	487,872	424,032	528,528	760,264	400,448	422,744	4,528,020
Dried	25,815	15,737	32,000	7,419	36,130	25,347	10,700	2,100		4,500	5,130	4,485	169,363
Fresh	1,920	850				3,525					900		7,195
Clams in shell	2,552	8,745	3,630	630	10,428		10,989	3,835	18,153	25,513	13,670	12,658	110,803
Shrimp	2,779,181	2,121,146	1,807,642	2,748,791	2,175,066	1,108,810	581,185	310,516	58,727	119,534	389,405	1,964,291	16,167,294
Shrimp, dried				700							6,193		6,893
Spiny Lobsters, cooked	284,062	276,373	278,078	474,697	280,752	37,438	2,485					82,135	1,716,020
Live	10,750	21,950											32,700
Octopus										412			412
Other				70				1,716,000	1,636	1,530		465	1,719,701
Shrimp, canned										320			320
Total	3,453,500	2,621,537	2,317,766	3,695,987	2,666,856	1,328,720	1,096,231	2,456,483	607,044	912,073	815,746	2,486,778	24,458,721
Other Fishery Products:													
Livers: Sea Bass	1,851	42	691	1,227	13,116	2,978	9,638	1,872	419	238			32,072
Shark	55,016	37,259	80,985	29,664	52,419	87,660	163,436	199,852	134,788	84,733	51,844	7,280	984,936
Unclassified		243					112			1,882			2,237
Fish sounds	561		660			1,852	851	2,450	308	308			6,990
Scrap	84,456												84,456
Shark Fins	7,441	845	4,846		1,916*	6,212[1]	1,047	8,594	16,384	10,187	5,393	3,127	65,992
Oil: Shark						375							375
Total	149,325	38,389	87,182	30,891	67,451	99,077	175,084	212,768	151,899	97,348	57,237	10,407	1,177,058
GRAND TOTAL	5,094,179	2,794,073	2,453,053	4,440,834	3,755,503	1,543,548	1,666,122	2,775,171	875,536	1,639,801	1,124,635	2,814,605	30,977,060

*Also 3 sacks not included in figure. [1]Also 22 sacks not included in figure. [2]This figure is in cases, not pounds and is not included in totals.

quantities of crushed ice daily, and attention is being paid to installation of more ice-making plants or enlarging those now in operation. As the number of vessels has rapidly increased, so has the need for webbing and materials for nets.

During 1949 there was a large demand for diesel engines, both for stationary plants and in trawlers, freezer vessels and fishing boats. Auxiliary engines, both gasoline and diesel, were in increasing demand. Outboard motors were replacing hand propulsion in the shark fishing and for abalone diving along the northern shores of Lower California. New boats were on ways from the head waters of the Gulf to Mazatlan, and these will all be driven and equipped with U. S. machinery. Tremendous quantities of marine paints, propellers, and every type of marine item imaginable are, and will be, in the future, crossing the international border.

Installation of every freezer plant, and upkeep of present ones calls for an enormous investment for originating power, for refrigeration systems, for automatic machinery and for new fleets to supply them. To transport the 1949 shrimp exports to this country required some 350 railroad cars, mostly from Guaymas, while refrigerated transport trucks were in constant transit to Southern California and points along the entire Pacific Coast with the fresh and frozen product.

Export-Import Bank Finances Shrimp Trawlers

Evidence of the faith in a great future for the Pacific Fisheries of Mexico's shrimp industry was seen late in 1949 when representatives of the National Steel & Shipbuilding Corporation, San Diego, and a group of Mexican cooperatives, were in Washington, D. C., to discuss with officials of the Export-Import bank a $1,000,000 loan to finance construction of twenty 52′ steel shrimp trawlers to operate in the Gulf of California.

The National Steel & Shipbuilding Corporation had previously constructed two series of steel trawlers. In 1948, Productos Congelados, Guaymas, and La Reforma, took delivery of four 48′ trawlers; last year a series of five, Atlas Imperial diesel-driven, 52′ long, was built for Pesquera de Topolobampo, Topolobampo.

Two years ago Avondale Marine Ways, New Orleans, built a series of steel trawlers for operation in the Gulf of California shrimp industry.

STEEL TRAWLERS FOR MEXICAN WEST COAST SHRIMP FISHERIES

for by American markets. These particular vessels are 54′ in length and are driven by Atlas and Shipbuilding Corporation for service in the shrimp fisheries of Mexico's Gulf of California. Viewed from two positions, these vessels are seen just prior to their launching in the fall of 1949. They have since taken their places as important factors in the new and fast-growing fleet supplying the modern freezers of the Mexican mainland with the giant shrimp so avidly sought-for by American markets. These particular vessels are 54′ in length and are driven by Atlas diesel engines through Monel shafts.

Lower California Seafood Canneries Important In Pacific Fisheries of Mexico

Keeping pace with other Pacific fisheries of Mexico, plants were on the increase in the peninsula of Lower California, and production, both domestic and for export, was considerably larger than in 1948. There were eight fish canneries in operation as 1949 closed, located from Sauzal, 65 miles below the international border, to Cape San Lucas, at the southern tip of the 900-mile peninsula.

Mexico's largest fish cannery, Pesquera del Pacifico, S del R.L., located at Sauzal, eight miles north of Ensenada, produced a total of 285,219 cases during 1949, of which over a quarter million cases were sardines and the balance mackerel.

The company, headed by Gen. Abelardo L. Rodriguez, and with Francisco A. Morales, Jr., as general manager, had two other plants in operation, both engaged with canning abalone. The Cedros Island plant, located offshore, produced 49,193 cases, packed in 1-lb. talls, whole.

The abalone plant at Turtle Bay, farther down the coast, whose product is handled by a subsidiary company, Cia. Maritima Industrial y Mercantil, S.A., Ensenada, produced approximately 25,000 cases during the year.

Another company, with the same general ownership, but with Roberto Rivas Cordova as manager, was Pesquera Peninsular, S. de R.L. at Ensenada, the plant producing 21,967 cases. Canned abalone from all these plants was handled for world export by Marine Products Company, San Diego.

Empacadora del Pacifico, S. A., packed approximately 20,000 cases of abalone during 1949, and for 1950 a line for packing Albacore is being installed. Empacadora de Baja California, S de R.L., was a new plant, engaged with abalone packing and some Pismo clams. The tuna-packing establishment at Cape San Lucas, operating many years by Cia. Productos Marinos, had an active year with a pack—figures not available—believed in excess of the previous year.

La Industrial de Ensenada, at Ensenada, destroyed by fire a year ago, was completely rebuilt, with equipment supplied by Harry Reed, United Sales & Engineering Company, Los Angeles. A new warehouse was being built in January. The company, headed by the Salazar brothers, packs sardines and mackerel, and has a capacity of around 2,500 cases, ovals; and 4,000 talls, daily.

Production record for Pesquera del Pacific, for 1949:

Sauzal Plant	*Cases*
Oval sardines 48/ls.	114,447
Sardines plain 72/8oz.	84,966
Sardines plain 100/6 oz.	14,450
Sardines 48/ls.	39,255
Mackerel 48/ls.	32,101
Cedros Plant	***Cases***
Abalone 48/ls.	49,193
Total	334,412

Three Years' Comparison—Cases

	1947	*1948*	*1949*
Sauzal	214,890	276,157	285,219
Cedros	42,646	49,284	49,193
	257,536	325,441	334,412

Dividends, wages and salaries paid to employees and workers for the year ending November 30, was higher than paid for the previous period. Wages paid totaled 1,337,848.69 pesos; salaries, office force, 121,343.00 pesos, for a total of 1,459,191.69 pesos. Dividends paid to workers and employees, under a system installed by General Rodriguez some years ago, far exceeded those paid to stockholders of the company after taxes: Workers received 893,003.45 pesos; stockholders, 500,924.29 pesos.

Lower California canneries are built and operated to a high standard, fully comparable with seafood canneries elsewhere, and are a source of pride as well as of food and income to all, Mexico, as well as to its long western peninsula.

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Reduction in halibut freezing in 1949, resulting from unsatisfactory marketing of record production of the year previous, was largely off-set in point of tonnage by a rise in the amount of salmon frozen on the Pacific Coast.

Despite a decline in the aggregate quantity of fillets frozen, 1949 saw marked advance along the line of machine-packaging of attractively packaged consumer units.

Dungeness crab freezing was halved in 1949, but production of frozen King crab advanced more than 100% to above 500,000 lbs.

Pattern of fish freezing on the Pacific Coast in 1949 followed closely the lines of previous years, down a little from 1948—and more than a little from the peaks of the war years—but with evidence of steady growth when compared with the years before the war.

A number of notable trends may be traced in the composition of the figures which go to make-up the 98,194,931-lb. total reports.

It is those trends, rather than the aggregate figures themselves, which perhaps are of greatest significance.

Halibut Freezing Reduced

The year 1949 saw a substantial reduction in the volume of halibut freezing as compared with 1948, the year in which an all-time record of 45,000,000 lbs. of halibut freezing was hung-up. In 1949 that total was scaled down to 40,286,000 lbs.

This was doubtless due to two factors. Most important: the heaviness which developed in the 45-

1949—PACIFIC FROZEN SHELLFISH—1949

Company	Cannery Location	Dungeness Crabmeat Pounds	King Crabmeat Pounds	Clams Shucked Pounds	Oysters Shucked Pounds	Shrimpmeat Pounds	Total Pounds
Booth Fisheries Corporation	Seattle	......	......	......	240,000	......	240,000
Brenner Oyster Co., J. J.	Olympia	......	......	......	206,500	......	206,500
British Columbia Packers, Ltd.	All Stations, B. C.	11,998	......	5,284	84,648	......	101,930
Chase Fish Corporation	Seattle	3,142	......	624	......	......	3,766
Columbia River Packers Association	Astoria	115	......	......	......	......	115
	Newport, Ore.	11,000	......	......	......	......	11,000
Deep Sea Trawlers, Inc.	Bering Sea—floating	......	403,600	......	......	......	403,600
Del Mar Canning Co.	Warrenton, Ore.	5,280	......	......	......	......	5,280
Guffey, Harry M.	Bering Sea—floating	......	35,000	......	......	......	35,000
Haines Oyster Co.	Seattle	......	......	......	70,000	......	70,000
Hallmark Fisheries	Coss Bay, Ore.	30,000	......	......	......	......	30,000
Kaakinen Fish Co.	Westport, Wash.	4,800	......	......	......	......	4,800
Kayler-Dahl Fish Co.	Petersburg, Alaska	30,000	......	......	......	90,000	120,000
Lawrence Co., J. E.	Portland, Ore.	10,000	......	......	......	......	10,000
New England Fish Co.	Astoria, Ore.	13,425	......	......	......	......	13,425
Portland Fish Co.	Portland, Ore.	10,072	......	4,295	6,390	......	20,757
Prince Rupert Fishermen's Cooperative Assn.	Prince Rupert, B. C.	......	......	......	......	638	638
San Juan Fishing & Packing Co.	Seattle	......	......	1,800	183,000	......	184,800
	Warrenton, Ore.	59,955	26,221	......			86,179
Seaside Clam Co.	Warrenton, Ore.	37,000	......	12,000	......		49,000
Sebastian-Stuart Fish Co.	Seattle	145	......	......	......	......	145
	Astoria, Ore.	2,395	......	15,776	......	......	18,171
Trawler "Lynnanne," Inc.	Bering Sea—floating	......	55,000	......	......	......	55,000
Washington Fish & Oyster Co.	Seattle	......	......	580	......	......	580
Whiz Fish Products Co.	Seattle	25,000	......	......	100,000	......	125,000
Willapoint Oysters, Inc.	Seattle	......	......	......	75,000	......	75,000
Total		**254,327**	**519,824**	**40,359**	**965,538**	**90,638**	**1,870,686**

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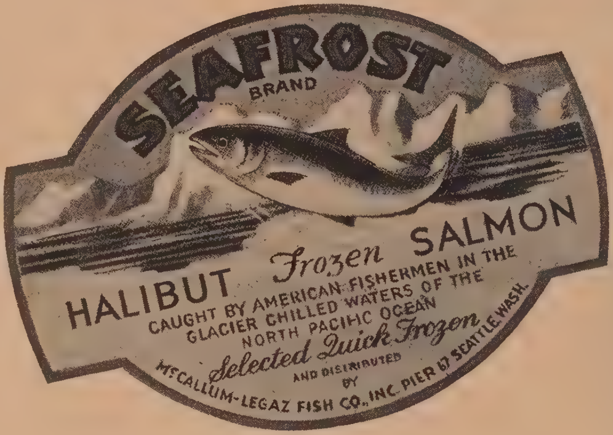
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million-pound freeze of the former year. It will be remembered that those freezers who had not disposed of their halibut by early 1949 were caught with inventory when the price of commodities generally dropped sharply in the spring "recession" of 1949.

Confidence in the ability of the consumer of the present to absorb such volumes of frozen halibut was shaken, and had not been restored by the time the early halibut season rolled around. There were predictions that halibut could not command more than the old O.P.A. ceiling prices, but these forecasts proved without foundation. However, there can be little doubt but that the reduction in the halibut freeze of 1949 was due essentially to inventory wariness on the part of the operators.

A second, and less important, factor doubtless lay in the slightly longer producing season, with a concomitant slightly shorter season for consuming frozen halibut.

It is interesting to note that the entire reduction in halibut freezing came in the Alaska division. On Puget Sound and in British Columbia the amount of halibut frozen in 1949 followed the pattern of the preceding year with astonishing faithfulness.

Salmon Freezing Advances

Salmon—the second great Pacific frozen fish item—advanced by about 4 million pounds in 1949 to reach 34,294,242 lbs., the largest pack in three years, although slightly below the 38 million pounds frozen in 1946, and well under the all-time record of 44.99 million pounds frozen in 1945.

With those two exceptions, the pack of 1949 was the largest salmon freeze ever produced.

All three major freezing areas—Alaska, British Columbia and Puget Sound—all went well ahead in the quantity of salmon frozen in 1949 as compared with the year previous; but it was Alaska where the big advance was registered, with a gain of almost 3 million pounds.

Freezing of Fillets Less

The pack of frozen fillets put up on the Pacific Coast in 1949 reflected the marketing problems encountered by the American producers during that year, particularly in meeting the competition of imported packaged fish.

All regions save British Columbia substantially reduced their production of frozen fillets in 1949. In the Province fillet-freezing advanced

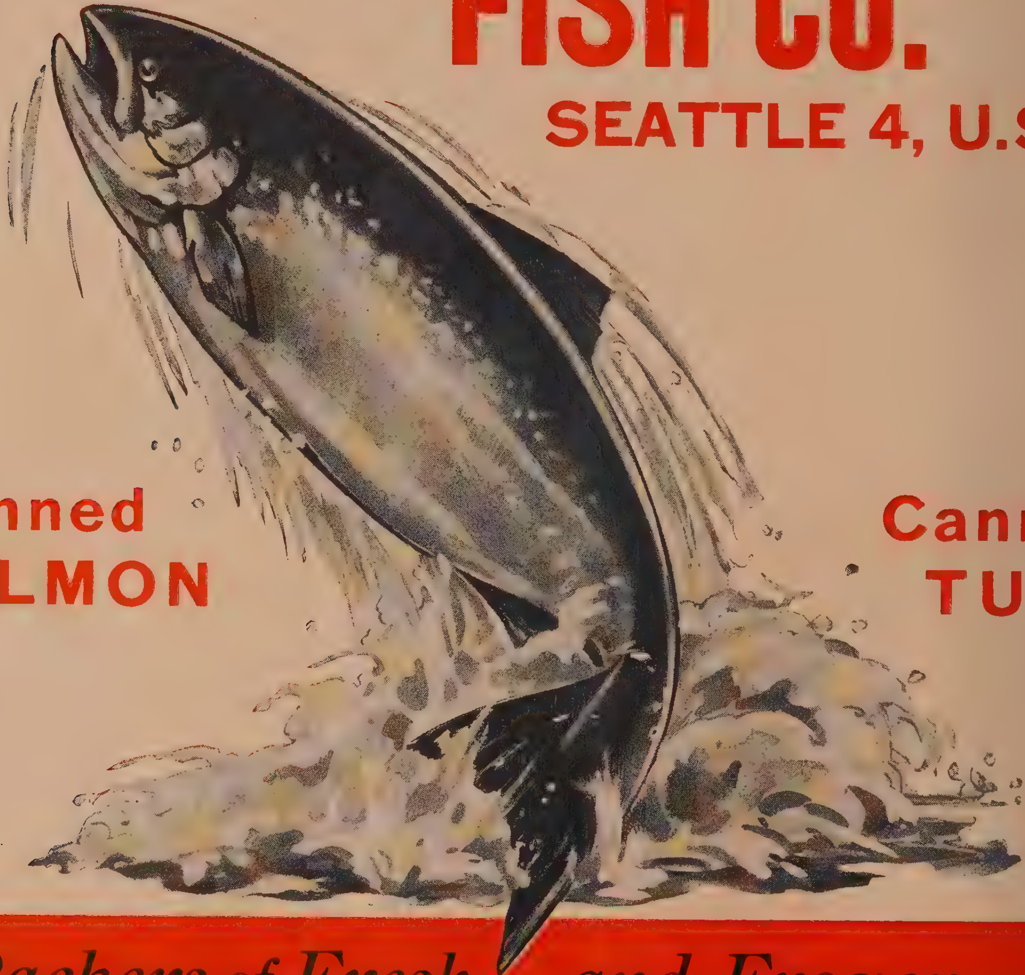
Pacific Frozen Fish — 1938 to 1949

District and Year	Halibut Pounds	Salmon Pounds	Steelhead Pounds	Sablefish Pounds	Misc. Pounds	Totals and Years
1938						**1938**
Alaska	6,904,640	7,918,897	4,274	773,787	68,305	15,669,903
British Columbia	10,870,867	12,662,933	324,000	1,329,009	987,260	26,174,069
Puget Sound	8,174,462	7,796,087	....	2,248,790	2,342,902	20,562,241
Columbia River & Coast	211,350	207,478	465,909	118,465	119.594	1,122,796
California	128,804	434,155	....	138,587	2,573,527	3.275,073
Total, 1938	**26,290,123**	**29,019,550**	**794,183**	**4,608,638**	**6,091,588**	**66,804,082**
1939						**1939**
Alaska	6,389,488	4,783,751	2,465	1,525,600	280,794	12,982,098
British Columbia	13,414,006	9,631,742	189,516	1,080,053	813,956	25,129,273
Puget Sound	7,795,768	4,488,450	....	1,887,336	1,827,266	15,998,820
Columbia River & Coast	252,692	607,100	352,884	135,347	243,600	1,591,623
California	32,807	301,956	....	407,870	3,147,932	3,890,565
Total, 1939	**27,884,761**	**19,812,999**	**544,865**	**5,036,206**	**6,313,548**	**59,592,379**
1940						**1940**
Alaska	8,310,553	6,304,064	11,413	1,824,532	682,721	17,133,283
British Columbia	13,453,612	11,347,239	237,000	1,285,915	1,317,404	27,641,170
Puget Sound	8,645,576	6,748,021	....	1,832,112	1,600,432	18,826,141
Columbia River & Coast	553,269	267,370	33,573	98,642	253,634	1,206,488
California	26,033	439,339	....	298,460	4,353,273	5,117,105
Total, 1940	**30,989,043**	**25,106,033**	**281,986**	**5,339,661**	**8,207,464**	**69,924,187**
1941						**1941**
Alaska	7,564,940	6,119,050	....	1,720,977	924,420	16,329,387
British Columbia	14,560,498	9,632,364	91,913	1,604,554	966,559	26,855,888
Puget Sound	9,440,017	7,569,858	....	1,348,723	2,345,540	20,704,138
Columbia River & Coast	602,210	178,498	1,628	118,120	761,013	1,661,469
California	100,000	462,000	....	227,000	5,965,887	6,754,887
Total, 1941	**32,267,665**	**23,961,770**	**93,541**	**5,019,374**	**10,963,419**	**72,305,769**
1942						**1942**
Alaska	8,720,056	7,908,717	8,606	4,851,974	361,554	21,850,907
British Columbia	16,571,639	12,150,338	18,046	1,697,327	3,541,929	33,979,279
Puget Sound	6,815,874	5,608,307	....	1,221,946	3,066,177	16,712,304
Columbia River & Coast	216,684	563,780	222,684	186,710	1,556,008	2,745,866
California	10,000	25,000	....	26,000	8,460,332	8,521,332
Total, 1942	**32,334,253**	**26,256,142**	**249,336**	**7,983,957**	**16,986,000**	**83,809,688**
1943			**Fillets**			**1943**
Alaska	11,068,724	9,114,694	....	3,986,438	825,505	**24,995,361**
British Columbia	10,397,337	13,313,250	60,076	2,320,559	2,667,881	**28,759,103**
Puget Sound	4,250,010	2,530,755	429,394	860,577	6,846,616	**14,917,352**
Columbia River & Coast	161,452	956,719	3,958,405	359,050	2,311,503	**7,747,129**
California	5,000	15,000	....	20,000	7,571,674	**7,611,674**
Total, 1943	**25,882,523**	**25,930,418**	**4,447,875**	**7,546,624**	**20,223,179**	**84,030,619**
1944			**Fillets**			**1944**
Alaska	19,214,203	10,753,715	....	5,413,503	1,892,846	**37,274,267**
British Columbia	12,574,036	14,793,573	572,315	1,856,055	3,763,055	**33,559.190**
Puget Sound	5,237,071	4,264,315	2,893,179	2,305,848	3,777,952	**18,478,365**
Columbia River & Coast	628,285	1,917,542	5,733,930	178,742	758,745	**9,217.244**
California	15,000	19,000	....	23,000	7,007,484	**7,064,484**
Total, 1944	**37,668,595**	**31,748,145**	**9,199,424**	**9,777,304**	**17,200,082**	**105,593,550**
1945			**Fillets**			
Alaska	19,353,649	13,374,086	....	5,955,388	3,396,849	**42,079,972**
British Columbia	10,290,942	19,931,674	1,745,529	1,254,623	5,890.142	**39,112,910**
Puget Sound & Wash. Coast	6,728,420	9,030,403	4,193,268	1,071,796	5,673,660	**26,697,547**
Columbia River & Ore. Coast	506,242	2,655,787	2,176,400	270,634	8,670,915	**14,279,978**
California	....	....	....	....	7,142.638	**7,142,638**
Total, 1945	**36,879,253**	**44,991,950**	**8,115,197**	**8,552,441**	**30,774,204**	**129,313,045**
1946			**Fillets**			**1946**
Alaska	14,966,616	12,036,956	30,000	4,519,989	2,075,530	**33,629,091**
British Columbia	12,782,294	14,384,544	1,972,000	1,778,855	11,486,110	**42,403,803**
Puget Sound & Wash. Coast	8,050,947	6,388,388	3,895,400	1,714,185	2,807,240	**22,856,160**
Columbia River & Ore. Coast	555,884	4,373,849	4,511,986	416,003	3,147,126	**13,004,848**
California	585,807	852,370	252,064	182,810	3,394,719	**5,267,770**
Total, 1946	**36,941,548**	**38,036,107**	**10,661,450**	**8,611,842**	**22,910,725**	**117,161,672**
1947			**Fillets**			**1947**
Alaska	20,638,301	10,197,755	4,597	886,535	383,473	**32,110,661**
British Columbia	14,930,795	13,583,850	1,057,828	729,492	6,357,106	**36,659,071**
Puget Sound & Wash. Coast	4,933,377	4,241,310	1,658,152	921,204	1,004,330	**12,758,373**
Columbia River & Ore. Coast	618,266	1,272,508	1,681,488	60,786	985,697	**4,618,745**
California	1,173,863	632,681	52,876	35,895	3,930,147	**5,825,462**
Total, 1947	**42,294,602**	**29,928,104**	**4,454,941**	**2,633,912**	**12,660,753**	**91,972,312**
1948			**Fillets**			**1948**
Alaska	26,020,134	9,582,232	165,370	5,065,056	5,290	**40,838,082**
British Columbia	11,512,287	15,209,533	1,650,856	1,651,028	4,210,412	**34,234,116**
Puget Sound & Wash. Coast	7,152,574	4,355,399	2,393,487	1,519,514	797,882	**16,218,856**
Columbia River & Ore. Coast	410,091	1,187,802	4,241,705	329,857	....	**6,169,455**
California	3,365	41,200	168,167	4,834	1,728,963	**1,946,529**
Total, 1948	**45,098,451**	**30,376,166**	**8,619,585**	**8,570,289**	**6,742,547**	**99,407,038**
1949			**Fillets**			**1949**
Alaska	20,914,221	12,222,337	1,309	3,772,851	271,901	**37,182,619**
British Columbia	11,505,968	16,365,561	1,841,821	1,825,713	4,913,908	**36,452,971**
Puget Sound & Wash. Coast	7,535,497	5,123,763	1,192,440	1,846,314	1,088,490	**16,786,504**
Columbia River & Ore. Coast	324,527	458,280	2,567,863	289,205	121,994	**3,761,869**
California	5,912	124,301	790,780	6,547	3,083,428	**4,010,968**
Total, 1949	**40,286,125**	**34,294,242**	**6,394,213**	**7,740,630**	**9,479,721**	**98,194,931**

NOTE.—Since 1942 Steelheads have been combined with salmon. Figures given in this column cover the quantities of frozen fillets of all varieties of fish reported. British Columbia figures include only amounts directly reported by owners of the fish and do not include unreported quantities in custom freezers.

SEBASTIAN-STUART FISH CO.

SEATTLE 4, U.S.A.



Canned SALMON

Canned TUNA

Packers of Fresh and Frozen

SALMON
HALIBUT
Mild Cured SALMON

1949—PACIFIC FROZEN FISH—1949

Company	Location	Halibut Pounds	Salmon Pounds	Sablefish Pounds	Miscellaneous Pounds	Fillets Pounds	Total Pounds
ALASKA							
Alaska Fish and Farm Products	Anchorage	....	75,000	....	....	....	75,000
Aleutian Cold Storage Co.	Sand Point	421,053	25,646	6,630	....	1,309	454,638
Booth Fisheries Corporation	Ketchikan	350,000	....	....	....	....	350,000
	Petersburg	75,000	....	....	....	....	75,000
	Juneau	270,000	....	....	....	....	270,000
	Pelican	500,000	575,000	75,000	....	....	1,150,000
	Sitka	100,000	....	....	....	....	100,000
	Sand Point	475,000	....	....	....	....	475,000
Chase Fish Corporation	Petersburg	31,555	....	....	....	....	31,555
Juneau Cold Storage Co.	Juneau	1,435,372	1,531,853	944,905	....	....	3,912,130
Kayler-Dahl Fish Co.	Petersburg	225,000	275,000	200,000	....	....	700,000
Ketchikan Cold Storage Co.	Ketchikan	2,499,177	2,225,748	191,015	....	....	4,915,940
McCallum-Legaz Fish Co.	Sitka	817,000	194,000	....	106,000	....	1,117,000
New England Fish Co.	S. E. Alaska	3,290,000	470,000	758,000	....	....	4,518,000
Oxenberg Bros.	Ketchikan	38,671	267,624	....	....	....	306,295
	Wrangell	5,686	36,444	14,755	....	....	56,885
	Petersburg	250,362	925,025	21,894	....	....	1,197,281
	Juneau	199,959	21,908	158,571	....	....	380,438
	Pelican	12,970	....	150,770	....	....	163,740
Pelican Cold Storage Co.	Pelican	677,430	214,297	209,602	....	....	1,101,329
Petersburg Cold Storage Co.	Petersburg	428,264	....	288,023	....	....	716,287
Phillips, E. C.	Ketchikan	1,075,000	393,150	9,236	....	....	1,477,386
San Juan Fishing & Packing Co.	Sand Point	372,952	....	....	....	....	372,952
	Juneau	246,673	398,545	11,883	....	....	657,101
	Ketchikan	220,746	130,450	749	200	....	352,145
	Sitka	297,529	....	....	....	....	297,529
	Pelican	196,237	....	15,935	....	....	212,172
	Petersburg	208,835	....	....	7,948	....	216,783
Sebastian-Stuart Fish Co.	Juneau	225,911	692,752	102,641	....	....	1,021,304
	Pelican	182,103	1,129,273	11,693	....	....	1,323,069
	Sitka	....	7,773	....	....	....	7,773
Seldovia Fisheries, Inc.	Seldovia	530,225	....	....	....	....	530,225
Seward Fisheries, Inc.	Seward	445,000	....	....	....	....	445,000
Sitka Cold Storage Co.	Sitka	710,799	1,160,658	....	157,753	....	2,029,210
Vita Food Products Co.	Sitka	23,624	292,800	103,860	....	....	420,284
	Ketchikan	1,406	38,028	....	....	....	39,434
	Petersburg	....	209,888	120,600	....	....	330,488
Washington Fish & Oyster Co.	Port Williams	1,124,000	....	....	....	....	1,124,000
Whiz Fish Products Co.	Sand Point	70,000	....	....	....	....	70,000
	Ketchikan	250,000	130,000	1,000	....	....	381,000
	Juneau	100,000	....	140,000	....	....	240,000
	Pelican	550,000	350,000	135,000	....	....	1,035,000
	Petersburg	160,000	35,000	....	....	....	195,000
	Sitka	70,000	....	1,000	....	....	71,000
	Cordova	400,000	35,000	....	....	....	435,000
Wrangell Cold Storage Co.	Wrangell	490,912	381,475	100,089	....	....	972,476
Miscellaneous	Cent. and West. Alaska Ports	859,770	....	....	....	....	859,770
Total Alaska		20,914,221	12,222,337	3,772,851	271,901	1,309	37,182,619
BRITISH COLUMBIA							
Booth Fisheries Corporation	Prince Rupert	100,000	....	....	....	....	100,000
British Columbia Packers, Ltd.	All Stations	3,281,790	7,164,575	433,484	4,085,759	....	14,965,608
Canadian Fishing Co., Ltd.	All Stations	3,351,000	3,662,000	146,000	802,000	1,647,000	9,608,000
Fishermen's Cooperative Federation	All Stations	137,815	3,403,126	114,838	....	....	3,655,779
Prince Rupert Fishermen's Coop. Assn.	Prince Rupert	3,551,358	2,054,394	1,087,009	....	194,821	6,887,582
San Juan Fishing & Packing Co.	Prince Rupert	859,241	....	1,523	....	....	860,764
	Vancouver	224,764	81,466	42,859	26,149	....	375,238
Total British Columbia		11,505,968	16,365,561	1,825,713	4,913,908	1,841,821	36,452,971
PUGET SOUND AND WASHINGTON COAST							
Booth Fisheries Corporation	Seattle	850,000	700,000	225,000	....	30,000	1,805,000
Chase Fish Co.	Seattle	190,435	38,610	....	....	3,690	232,735
Chase Seafood Co.	Everett	5,800	39,000	44,500	....	116,000	205,300
Eardley Fish & Fillet Co.	Seattle	248,000	128,000	150,000	....	346,000	872,000
Lawrence, J. E., Co.	Seattle	60,000	25,000	3,000	....	....	88,000
McCallum-Legaz Fish Co.	Seattle	180,000	91,000	113,000	75,000	....	459,000
New England Fish Co.	Seattle and Everett	766,000	627,000	130,000	....	....	1,523,000
Oxenberg Bros., Inc.	Seattle	239,105	88,425	182,855	....	47,985	558,370
San Juan Fishing & Packing Co.	Seattle	1,195,788	1,174,379	363,161	234,606	489,363	3,457,297
Sebastian-Stuart Fish Co.	Seattle	465,000	49,530	2,350	....	75,375	592,255
Washington Fish & Oyster Co.	Seattle	1,061,855	1,013,675	127,395	....	84,027	2,286,952
Whiz Fish Products Co.	Seattle	900,000	250,000	173,000	....	....	1,323,000
Miscellaneous	Seattle	1,373,514	899,144	332,053	778,884	....	3,383,595
Total Puget Sound and Washington Coast		7,535,497	5,123,763	1,846,314	1,088,490	1,192,440	16,786,504
COLUMBIA RIVER AND OREGON COAST							
Columbia River Packers Association	Astoria	48,792	....	1,700	....	123,770	174,262
	Newport	12,830	5,495	141,160	....	....	159,485
Del Mar Canning Co.	Warrenton	....	....	2,067	....	271,087	273,154
Feller, Charles	Coos Bay	45,000	240,000	119,000	....	1,600,000	2,004,000
New England Fish Co.	Astoria and Kalama	....	25,000	....	....	5,000	30,000
Portland Fish Co.	Portland	80,130	72,557	2,012	....	16,370	171,069
San Juan Fishing & Packing Co.	Warrenton	137,775	17,604	20,007	121,994	495,866	793,246
Seaside Clam Co.	Warrenton	....	6,000	....	....	....	6,000
Sebastian-Stuart Fish Co.	Astoria	....	....	....	....	55,770	55,770
Union Fishermen's Cooperative Packing Co.	Astoria	....	91,624	3,259	....	....	94,883
Total Columbia River and Oregon Coast		324,527	458,280	289,205	121,994	2,567,863	3,761,869
CALIFORNIA	All Ports	5,912	124,301	6,547	3,083,428	790,780	4,010,968
GRAND TOTAL		40,286,125	34,294,242	7,740,630	9,479,721	6,394,213	98,194,931

NOTE—Amounts of fish shown in the above table as frozen by companies operating public custom cold storages are **net** amounts, representing only the fish frozen in those plants and not covered elsewhere in the table by individual reports from firms which had the fish frozen on their account. **Gross** amounts of fish frozen in Alaska custom cold storages are shown in a separate table elsewhere in this issue.

1949—CALIFORNIA FROZEN FISH HOLDINGS BY MONTHS—1949

Species	Nov. 1948 Pounds	Dec. 1948 Pounds	Jan. 1949 Pounds	February Pounds	March Pounds	April Pounds	May Pounds	June Pounds	July Pounds	August Pounds	September Pounds	October Pounds
Bait and Animal Food	172,809	287,351	168,369	76,490	43,726	155,941	....	80,729	303,869	281,890	256,843	805,831
Cod, Haddock, Hake and Pollock	....	....	115,197	16,650	35,700	95,827	....	....	....	....	950	....
FILLETS:												
Cod	261,625	42,836	40,128	60,644	589	21,862	1,648	68,572	221,990	207,343	57,688	30,331
Flounder (including sole)	143,932	173,555	104,813	106,890	113,893	102,572	74,772	86,269	112,465	106,208	115,918	119,039
Haddock	42,500	39,250	12,250	....	900	7,150	9,550	25,433	63,645	45,414	9,328	30,264
Lingcod	4,563	5,583	1,190	2,263	2,127	426	991	241	13,344	13,462	34,580	....
Mackerel	18,866	19,227	15,630	34,552	24,403	29,871	400	150	150	350	7,130	....
Rosefish	113,930	123,862	58,412	72,358	....	....	10,600	10,980	20,550	51,770	42,160	45,528
Whiting	....	....	....	....	....	....	....	....	....	....	7,850	3,850
Other fillets	96,857	123,577	117,298	64,104	131,797	76,138	40,685	126,402	231,204	624,576	900,770	923,657
Pollock	....	....	....	....	....	....	....	....	....	....	792	....
Flounder (including sole, fluke, Cal. halibut, etc., excl. fillets)	197,202	177,064	114,392	179,302	154,847	123,200	123,744	139,804	126,187	206,218	186,853	173,051
Halibut	422,909	411,208	371,106	279,026	87,358	41,309	77,938	96,761	94,116	104,856	93,461	229,810
Mackerel (excl. fillets, Spanish and King)	71,690	80,495	....	43,337	36,922	35,184	31,073	61,169	50,666	58,000	91,979	103,848
Mullet	....	....	55,290	....	10	....	40	40	....	....	32,777	....
Sablefish (Black Cod)	65,567	63,025	....	50,968	60,797	55,448	6,460	17,121	15,732	12,747	10,614	8,053
Herring, sea	....	....	64,013	....	....	....	....	....	....	....	....	....
SALMON:												
King or Chinook	76,781	69,990	44,728	31,328	35,520	34,102	25,319	61,250	70,552	26,125	95,843	89,692
Silver or Coho	27,921	28,501	15,030	21,993	16,227	10,292	8,200	36,726	48,543	77,337	2,600	2,600
Fall or Chum	420,940	403,957	390,989	380,606	373,013	375,316	378,104	396,133	425,932	434,785	452,811	452,761
Pink	121,654	138,133	119,274	110,153	101,244	98,067	....	6,171	4,349	2,689	1,957	....
Steelhead Trout	....	....	....	....	....	....	....	....	....	....	....	....
Unclassified	520,473	442,490	146,785	437,511	357,379	14,032	9,209	367,080	95,291	111,064	141,934	112,798
Sea Trout	....	....	....	....	....	1,538	4,046	18,684	15,318	10,896	6,110	16,544
Shad (including roe shad)	16,631	15,126	16,163	15,077	10,148	12,059	27,433	38,057	28,996	32,136	26,609	25,966
Shad roe	10,498	10,213	9,955	8,773	9,809	9,855	6,656	....	200	....	305	345
Smelt	172,472	170,867	168,446	169,136	162,282	114,554	5,200	7,457	8,357	6,340	6,817	6,070
Swordfish	265,819	252,538	185,326	203,129	209,802	159,684	162,920	172,476	162,271	283,242	228,523	242,739
Tuna	98,964	82,147	81,963	125,010	107,078	83,859	120	11,904	34,322	35,245	51,200	45,323
Whiting	....	....	....	....	10,450	9,150	9,150	600	600	....	1,456	....
Unclassified saltwater fish	1,401,829	1,126,340	1,177,700	1,518,273	1,550,218	1,309,088	1,807,302	1,993,725	2,568,149	2,133,906	2,083,873	1,808,196
Total	4,746,432	4,287,335	3,594,447	4,007,573	3,636,239	2,976,524	2,821,560	3,823,934	4,716,798	4,866,599	4,949,731	5,276,296

1949—CALIFORNIA FISH FREEZINGS—1949

Species	Nov. 1948 Pounds	Dec. 1948 Pounds	Jan. 1949 Pounds	February Pounds	March Pounds	April Pounds	May Pounds	June Pounds	July Pounds	August Pounds	September Pounds	October Pounds	Total Frozen Pounds
Bait and Animal Food	27,757	41,472	....	1,814	54,181	60,768	....	44,148	73,922	39,085	49,237	67,685	460,069
FILLETS:													
Flounder (including sole)	5,896	3,220	....	1,370	2,210	9,591	5,873	4,017	3,185	2,070	360	1,629	39,421
Lingcod	....	....	....	....	364	....	....	....	6,137	....	19,020	....	25,521
Mackerel	54	5,581	....	24,956	6,482	66,071	....	....	....	....	6,780	....	109,924
Other fillets	278	2,380	....	2,824	15,068	3,500	....	28,007	117,142	102,440	268,338	75,937	615,914
Flounder (including sole, fluke, Cal. halibut, etc., excl. fillets)	....	....	3,408	....	6,052	29,870	8,626	16,299	15,970	2,345	165	....	82,735
Halibut	....	....	....	....	....	....	4,912	....	1,000	....	....	....	5,912
Mackerel (excl. fillets and Spanish and King)	....	....	....	....	....	....	....	19,972	2,464	20,363	47,377	26,098	116,274
Sablefish (Black Cod)	....	....	....	....	512	310	1,652	1,712	295	990	662	414	6,547
SALMON:													
King or Chinook	563	....	....	....	....	....	....	....	....	....	3,881	2,950	7,394
Silver or Coho	1,706	....	....	....	....	....	....	....	11,017	21,089	....	....	33,812
Fall or Chum	....	....	....	....	....	....	....	....	....	....	....	3,265	3,265
Unclassified	....	....	....	....	....	2,487	....	....	....	74,700	....	....	77,187
Pink	....	....	....	....	....	....	....	....	1,205	1,438	....	....	2,643
Shad (including roe shad)	....	....	....	....	....	....	18,558	8,221	....	....	....	....	26,770
Smelt	1,740	....	....	200	475	1,010	....	....	....	....	890	1,800	6,115
Swordfish	112	....	....	....	....	....	....	....	....	687	716	4,042	5,557
Tuna	236	1,252	....	51,339	....	900	....	11,670	25,843	5,126	19,729	4,273	120,368
Unclassified	73,006	162,585	92,604	185,457	335,671	116,264	206,143	329,526	366,242	331,771	354,508	171,823	2,725,600
Total	111,348	216,490	96,012	267,960	421,015	290,771	245,764	463,572	624,422	602,104	771,663	359,916	4,471,037

Puget Sound Frozen Fish Packs--1928 to 1949

YEAR	HALIBUT, Pounds	SALMON, Pounds	STEELHEAD AND FILLETS Pounds	SABLEFISH, Pounds	MISCELLANEOUS, Pounds	Total Pounds	YEAR
1928	3,929,600	5,737,402	72,399	1,676,530	1,091,008	**12,506,939**	1928
1929	4,365,139	5,737,367	118,034	1,339,912	1,272,772	**12,833,224**	1929
1930	4,008,690	6,767,538	58,246	2,057,845	2,114,206	**15,006,525**	1930
1931	7,124,976	7,034,178	57,815	941,986	742,543	**15,901,498**	1931
1932	6,241,135	4,764,945	11,375	1,045,588	470,872	**12,533,915**	1932
1933	8,575,289	8,685,729	†160,080	842,039	456,298	**18,719,435**	1933
1934	9,592,971	8,276,309	† 54,479	1,381,287	1,306,520	**20,611,566**	1934
1935	7,056,953	10,996,930	....	1,740,122	1,415,122	**20,939,915**	1935
1936	7,395,485	6,704,971	....	1,309,243	811,273	**16,220,972**	1936
1937	8,490,747	10,121,808	....	2,314,399	1,578,453	**22,505,407**	1937
1938	8,174,462	7,796,087	....	2,248,790	2,342,902	**20,562,241**	1938
1939	7,795,768	4,488,450	....	1,887,336	1,827,266	**15,998,820**	1939
1940	8,645,576	6,748,021	....	1,832,112	1,600,432	**18,826,141**	1940
1941	9,440,017	7,569,858	....	1,348,723	2,345,540	**20,704,138**	1941
1942	6,815,874	5,608,307	Fillets	1,221,946	3,066,177	**16,712,304**	1942
1943	4,250,010	2,530,755	429,394	860,577	6,846,616	**14,917,352**	1943
1944	5,237,071	4,264,315	2,893,179	2,305,848	3,777,952	**18,478,365**	1944
1945	6,728,420	9,030,403	4,193,268	1,071,769	5,673,660	**26,697,547**	1945
1946	8,050,947	6,388,388	3,895,400	1,714,185	2,807,240	**22,856,160**	1946
1947	4,933,377	4,241,310	1,658,152	921,204	1,004,330	**12,758,373**	1947
1948	7,152,574	4,355,399	2,393,487	1,519,514	797,882	**16,218,856**	1948
1949	7,535,497	5,123,763	1,192,440	1,846,314	1,088,490	**16,786,504**	1949

†All Steelheads frozen on Puget Sound were Columbia River fish shipped to Seattle for freezing.

NOTE:—Since 1942 Steelheads have been combined with Salmon. Figures given in this column cover the quantities of frozen fillets of all varieties of fish reported.

somewhat — a fact to which American operators will be inclined to point as further evidence of the pressure fillets.

(As a matter of fact, imports of fillets from British Columbia to the Pacific Coast market are believed to consist of fresh fillets to a much larger degree than of frozen goods.)

Although sharply scaling down its production from the previous year, the Columbia River district continued to maintain its three-year hold on first place among frozen fillet producing areas.

Sable and Miscellaneous

These two classifications of frozen fish followed the trends of previous years, with some slight advance in aggregate production. Sablefish is generally believed by fishermen to be showing signs of depletion, but

SALMON FREEZING IN CANADA BY MONTHS

Year	Jan. Pounds	Feb. Pounds	March Pounds	April Pounds	May Pounds	June Pounds	July Pounds	Aug. Pounds	Sept. Pounds	Oct. Pounds	Nov. Pounds	Dec. Pounds	Total Pounds
1943	42,410	76,821	1,722	1,410	46,691	579,333	1,289,797	1,842,880	3,306,198	4,693,989	2,738,670	194,089	14,814,010
1944	190,468	366,346	199,226	34,334	35,166	799,534	1,736,542	2,902,804	3,602,202	3,489,092	490,764	216,862	14,063,340
1945	419,230	95,244	360,661	19,945	158,305	822,475	822,475	3,789,008	4,264,479	4,264,479	1,313,675	401,122	16,731,098
1946	18,904	520,509	902,832	43,216	114,952	1,213,867	2,131,929	3,098,060	3,709,790	6,134,139	3,262,982	421,969	21,573,149
1947	271,572	221,343	270,066	41,620	342,709	921,265	2,328,428	2,659,952	2,628,493	6,477,323	1,873,407	48,000	18,084,178
1948	443,000	147,000	7,000	15,000	243,000	1,498,000	2,237,000	2,626,000	2,771,000	10,387,000	2,009,000	291,000	22,674,000
1949	157,000	22,000	33,000	107,000	242,000	1,772,000	2,676,000	4,568,000	3,910,000	6,345,000	(1)	(1)	19,832,000

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(1) Data not available.
Note—All figures in accordance with latest reports.
Source—Dominion Bureau of Statistics—Department of Trade and Commerce—monthly reports.

Seattle—Weighted Average Prices Paid to Fishermen—1949

Fish	Dec. 1948 Cts. lb.	Jan. 1949 Cts. lb.	Feb. Cts. lb.	Mar. Cts. lb.	April Cts. lb.	May Cts. lb.	June Cts. lb.	July Cts. lb.	Aug. Cts. lb.	Sept. Cts. lb.	Oct. Cts. lb.	Nov. Cts. lb.
Cod, true, ex-vess., Dr.	6.0	6.0	6.0	6.0	6.0	6.0	5.7	5.0	5.0	5.0	5.0	5.0
Cod, true, ex-vess., Rd.	4.0	4.0	4.0	4.0	4.0	4.0	3.4	3.0	3.0	3.0	3.0	3.0
Flounder, ex-vess., Rd.	4.0	4.0	4.0	4.0	4.0	4.0	4.0	......	4.0	4.0	4.0	4.0
Halibut, No. 1, ex-vess., Dr.	......	......	......	......	......	21.4	24.8	21.0	30.0	30.0	30.0	30.0
Halibut, No. 2, ex-vess., Dr.	......	......	......	......	......	18.7	20.2	18.6	29.6	30.0	30.0	......
Herring, local, Rd.	......	......	3.0	4.5	5.0	......	......	......	......	......	......	......
Lingcod, ex-vess., Dr.	9.0	9.5	9.9	9.8	9.2	7.7	6.7	6.0	6.0	6.0	6.4	7.0
Lingcod, ex-vess., Rd.	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Perch, local, Rd.	11.0	......	......	......	8.5	......	......	......	......	......	......	......
Rockfish, ex-vess., Dr.	......	9.4	9.9	10.8	9.4	5.1	5.1	5.0	5.0	5.0	4.8	5.6
Rockfish, ex-vess., Rd.	5.0	4.5	4.5	4.5	4.5	4.5	4.4	4.1	4.1	4.3	4.0	4.0
Sablefish, ex-vess., Dr.	15.25	10.0	......	12.5	6.0	9.3	12.9	12.3	10.4	9.9	9.5	8.9
Sablefish, ex-vess., Rd.	5.0	4.0	......	......	......	5.0	5.7	5.4	5.0	5.0	5.0	5.0
SALMON:												
Chinook, lg., ex-vess., Dr.	......	55.0	......	49.9	40.0	36.6	38.1	37.6	35.9	36.5	35.8	......
Chinook, sm., ex-vess., Dr.	......	......	......	53.8	38.0	30.6	32.3	29.3	27.9	27.1	27.3	......
Chinook, Wh., ex-vess., Dr.	......	......	......	46.6	39.0	23.3	23.7	22.9	22.8	21.8	......	......
Chinook, ex-vess., Rd.	......	......	......	......	......	......	......	12.5	12.5	12.5	......	20.5
Chum, ex-vess., Rd.	......	......	......	......	......	......	......	......	......	14.0	14.5	14.5
Pink, ex-vess., Rd.	......	......	......	......	......	......	......	10.0	10.0	10.0	......	......
Silver, ex-vess., Dr.	......	......	......	......	......	......	21.2	18.4	23.9	26.0	29.5	......
Silver, ex-vess., Rd.	......	......	......	......	......	......	......	12.5	12.5	20.0	20.5	20.5
Sockeye, Rd.	......	......	......	......	......	......	......	20.0	20.0	20.0	......	......
Smelt, Eulachon, Rd.	......	......	16.0	6.5	9.0	......	......	......	......	......	......	......
Smelt, Silver, Rd.	......	......	......	......	......	......	9.5	7.3	......	......	......	......
Sole, English, ex-vess., Rd.	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Sole, Petrale, ex-vess., Rd.	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
Sole, Other, ex-vess., Rd.	6.0	5.0	5.0	7.0	6.0	......	......	5.0	6.0	6.0	......	5.0
Tuna, Albacore, ex-vess., Rd.	......	......	......	......	......	......	......	18.5	17.8	17.9	17.5	17.5
Miscellaneous, ex-vess.	20.0	4.0	......	......	......	......	......	......	......	......	......	......

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FILLET IMPORTS TO U.S. — 1948 AND 1949

	December	January		February		March		April		May		June	
	1948	1948	1949	1948	1949	1948	1949	1948	1949	1948	1949	1948	1949
Country	Pounds	Pounds	Pounds	Pounds	Pounds	Pounds	Pounds	Pounds	Pounds	Pounds	Pounds	Pounds	Pounds
Canada	2,401,360	3,540,125	3,469,890	3,832,591	2,523,050	2,482,463	3,882,067	4,238,680	4,754,409	4,078,570	2,780,123	4,665,501	2,298,965
Iceland	45,000	......	747,150	190,500	......	1,761,550	610,820	537,500	1,873,236	206,450	......	......	31,150
Norway	......	......	......	......	100	......	40	......	......	......	104,926	......	215,184
Denmark	......	......	......	......	......	......	......	9,352	......	......	......	......	......
Sweden	......	......	......	......	......	......	......	40	......	......	......	......	......
Tot. Lbs.	**2,997,943**	**3,540,125**	**4,217,040**	**4,023,091**	**2,523,150**	**4,244,013**	**4,492,927**	**4,785,572**	**6,627,645**	**4,285,020**	**2,885,049**	**4,665,501**	**2,545,299**

	July		August		September		October		November		TOTAL	
	1948	1949	1948	1949	1948	1949	1948	1949	1948	1949	1948	1949*
Country	Pounds	Pounds	Pounds	Pounds	Pounds	Pounds	Pounds	Pounds	Pounds	Pounds	Pounds	Pounds
Canada	6,403,727	5,978,619	5,011,491	3,297,923	3,692,154	2,052,437	5,977,774	5,155,918	2,815,448	3,753,601	49,140,150	39,947,002
Iceland	19,950	30,500	266,750	150,400	......	100,850	257,054	999,800	896,450	184,000	4,181,204	4,727,906
Norway	......	......	......	......	395,109	57,200	......	4,848	......	......	395,109	382,298
Denmark	......	......	......	......	......	......	......	......	......	......	9,352	......
Sweden	......	......	......	......	......	......	......	......	......	......	40	......
Netherlands	......	......	......	......	......	......	......	20,845	......	......	......	20,845
Belgium	......	......	......	......	......	......	......	......	......	17	......	17
Total Pounds	**6,423,677**	**6,009,119**	**5,278,241**	**3,448,323**	**4,087,263**	**2,210,487**	**6,234,828**	**6,181,411**	**3,711,898**	**3,937,618**	**54,277,438**	**45,078,068**

*1949 totals are for eleven months ending with November.

the freeze of 7.7 million pounds holds up closely to the levels of the best years in the past.

Frozen Fish Packaging

The year 1949 saw some significant advances in the field of frozen fish packaging, and in the future may be looked-back-upon as the year which pioneered the great movement to consumer packages of frozen fish.

A number of the larger operators on the coast took long steps toward consumer markets for frozen fillets, packaging their products in attractive manner, using beautifully ornamented packaging material, vapor-tight cartons and coverings, and efficient, modern wrapping machinery. They recognized the passing of the military market for enormous quantities of bulk-packed fillets, and the necessity in the consumer market of individual packages of compelling attractiveness.

While American operators are unquestionably confronted with a difficult problem as result of their high fish and labor costs on the one hand and the pressure of imports on the other, the experience of 1949 in the packaged fish field seems to assure further forward movement in the future.

One-pound packages, attractively wrapped in impervious lithographed or rotogravured colors, with the speed, efficiency and finesse of the best machine-wrapping appear to

FILLET IMPORTS BY COUNTRIES 1946 — 1949

Year	Canada	Newfoundland*	Iceland	England	Denmark	Norway	Sweden	Netherlands	Total
1946	38,950,523	5,899,856	4,720,618	47	2,150	1,756	14	......	49,574,964
1947	24,707,690	6,231,920	2,579,882	......	......	......	......	......	33,519,492
1948	49,140,150	......	4,181,204	......	9,352	395,109	40	......	54,277,438
1949	39,947,002	......	4,727,906	......	......	382,298	......	20,845	**45,078,068

*Newfoundland imports are included with Canada's in 1948 and 1949 summaries, since Canada annexed Newfoundland in 1949.
**Eleven-month total which includes 17 lbs. imported from Belgium.

Columbia River Frozen Fish Packs--1928 to 1949

YEAR	HALIBUT, Pounds	SALMON, Pounds	STEELHEAD AND FILLET Pounds	SABLEFISH, Pounds	MISCELLANEOUS, Pounds	**Total Pounds**	YEAR
1928	......	326,541	1,156,598	30,000	102,188	**1,615,327**	1928
1929	24,000	607,483	1,544,779	78,000	233,527	**2,487,789**	1929
1930	14,700	374,322	1,322,737	......	547,006	**2,258,765**	1930
1931	4,699	392,581	1,311,033	35,600	559,993	**2,303,906**	1931
1932	......	733,234	538,795	10,000	54,427	**1,336,456**	1932
1933	75,000	886,789	859,563	......	153,834	**1,975,186**	1933
1934	199,362	489,183	959,916	49,620	154,765	**1,852,846**	1934
1935	161,827	943,442	461,847	60,494	243,934	**1,871,544**	1935
1936	48,818	178,922	629,896	117,624	123,920	**1,099,182**	1936
1937	25,000	391,000	520,996	35,000	61,253	**1,033,249**	1937
1938	211,350	207,478	465,909	118,465	119,594	**1,122,796**	1938
1939	252,692	607,100	352,884	135,347	243,600	**1,591,623**	1939
1940	553,269	267,370	33,573	98,642	253,634	**1,206,488**	1940
1941	602,210	178,498	1,628	118,120	761,013	**1,661,469**	1941
1942	216,684	563,780	222,684	186,710	1,556,008	**2,745,866**	1942
1943	161,452	956,719	3,958,405	359,050	2,311,503	**7,747,129**	1943
1944	628,285	1,917,542	5,733,930	178,742	758,745	**9,217,244**	1944
1945	506,242	2,655,787	2,176,400	270,634	8,670,915	**14,279,978**	1945
1946	555,884	4,373,849	4,511,986	416,003	3,147,126	**13,004,848**	1946
1947	618,266	1,272,508	1,681,488	60,786	985,697	**4,618,745**	1947
1948	410,091	1,187,802	4,241,705	329,857	......	**6,169,455**	1948
1949	324,527	458,280	2,567,863	289,205	121,994	**3,761,869**	1949

NOTE:—Since 1942 Steelheads have been combined with Salmon. Figures given in this column for years after 1942 cover quantities of frozen fillets of all varieties of fish reported. Data in this table based on reports of principals and custom freezers to this journal.

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A BRAIL OF SALMON DROPS INTO A SEINER'S HOLD

These fish have been taken by a Puget Sound salmon seiner and are being brailed from the bunt of the seine by means of the giant-sized dipnet operated by power from the boom. A large part of the pack of Fall salmon is taken on Puget Sound by this form of gear.

have established themselves as a fundamental part of the Pacific frozen fillet trade.

Important factors in the fish freezing business committed themselves in 1949 to this trend as the means for meeting their problems, and the effective future expansion of their business.

Alaska Freezing Down

Fish freezing in Alaska in 1949 shows some slight decline from the year previous, although with the exception of 1948 and 1946 it stood at the top of the Territory's freezing history.

Halibut freezing in Alaska was down 6 million pounds, and salmon was up 3 million. Sablefish on the other hand took a drop, and the year closed with a pack of 37 million, against 40.8 million in 1948.

No new freezing plants were brought into operation in Alaska during 1949, although some were improved and steps were taken for still further development of facilities in 1950.

Agitation for a "split-season" in the halibut fishery undoubtedly served to dampen development of cold storages in Alaskan area to westward.

The Kodiak Cold Storage Co. program for construction of a modern freezer and storage at Kodiak was initiated in 1949 with construction of dock and other facilities, but con-

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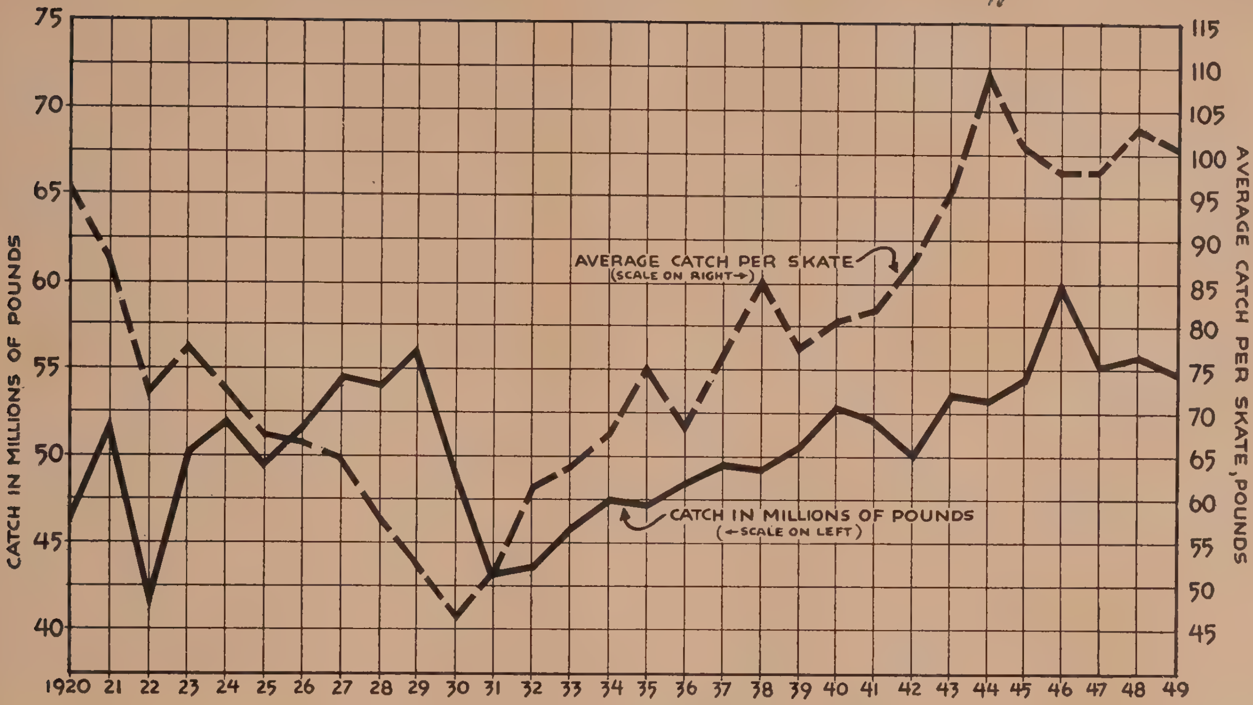

DECLINE AND RECOVERY OF THE PACIFIC HALIBUT RESOURCE

Curves on this graph show how the total catch (solid line) and the catch per unit of gear (broken line) fell consistently, the total catch being held-up during the 'Twenties by greatly increased effort. Finally, with the 'Thirties, regulation was applied along lines dictated by the scientific research of the International Fisheries Commission. This has produced a steady rise in total catch as well as in catch-per-unit. Recent slight decline is believed to be one result of the extremely short fishing season which has resulted from the improvement in abundance, as well as from the greatly increased quantity of gear which has been attracted to the fishery.

struction was reported suspended about the time that discussion of season-splitting was actively resumed in the fall of 1949.

British Columbia Active

British Columbia continued highly active in fish-freezing in 1949, reported individual production for the year exceeding that of the previous season, and comparing favorably with the best business of the past.

It should be noted that the figures given for British Columbia represent only the reported packs of the more important operators, and do not include freezings of minor factors in custom storages. Details of these customs operations have not been available in recent years. Prior to the war it was possible to give an entirely adequate report of British Columbia fish freezing. With the outbreak of the war in 1939 the Canadian government forbade publication of such figures by custom storages and it has not since been possible to secure full report on British Columbia fish freezing for the current season.

Puget Sound Trade Steady

Fish freezing on Puget Sound varied little in 1949 from the previous year. Total tonnage handled was almost exactly the same, with a half-million pounds increase in 1949 to 16.7 million.

Halibut freezing showed almost no variation, while salmon advanced materially. On the other hand, there was a definite decline in the volume of frozen fillets produced. Sablefish and miscellaneous varieties rose somewhat in volume.

Coast Facilities Improved

The Columbia River concentrated its 1949 freezing largely on fillets, and continued as the foremost exponent of frozen packaged fish for the third consecutive year.

One of the notable plant developments of the year was that of the New England Fish Co. at Astoria, which was modernized in the interests of increased efficiency in the production of the 1-lb. consumer package, while at the same time

Holdings of Frozen Halibut in Canada by Months

Year	Jan. Pounds	Feb. Pounds	March Pounds	April Pounds	May Pounds	June Pounds	July Pounds	Aug. Pounds	Sept. Pounds	Oct. Pounds	Nov. Pounds	Dec. Pounds	Year
1943........	5,033,262	4,320,016	3,662,970	2,023,376	1,678,527	3,113,646	4,822,529	4,874,661	4,971,853	3,715,845	4,136,536	3,494,191	1943
1944...	2,503,628	2,039,395	1,507,225	1,097,699	792,549	728,024	3,905,781	6,675,093	6,368,948	6,354,092	5,392,449	4,861,059	1944
1945........	4,222,080	2,970,513	2,605,945	1,596,132	1,193,618	4,430,285	7,065,500	6,462,794	6,146,324	5,305,732	4,538,808	2,874,540	1945
1946........	2,348,945	1,472,192	1,188,634	717,256	237,978	5,499,251	9,561,055	9,260,311	9,366,369	8,076,480	7,067,600	6,298,440	. . .. .1946
1947	5,479,805	4,176,190	3,592,122	2,680,602	1,282,144	7,140,603	10,209,201	11,994,470	13,411,286	11,517,561	9,836,666	9,080,400	1947
1948........	8,296,000	6,613,000	5,254,000	3,348,000	2,312,000	9,108,000	10,717,000	11,216,000	9,362,000	8,610,000	7,418,000	5,687,000	... .1948
1949........	4,685,000	3,949,000	2,866,000	1,016,000	411,000	7,963,000	9,948,000	11,929,000	10,727,000	9,456,000	7,874,000	(1)	.... .1949

(1) Data not available.

Note—All figures in accordance with latest reports.

Source—Dominion Bureau of Statistics—Department of Trade and Commerce—monthly reports.

1949—WASHINGTON FISH FREEZINGS BY MONTHS—1949

Species	Dec. 1948 Pounds	Jan. 1949 Pounds	February Pounds	March Pounds	April Pounds	May Pounds	June Pounds	July Pounds	August Pounds	September Pounds	October Pounds	November Pounds	Total Pounds
Bait and Animal Food	138,083	459,254	177,165	618,120	390,034	160,420	178,220	71,009	189,990	143,340	96,782	345,630	2,968,047
Cod, rock	1,890	4,790	7,305	6,858	2,330	3,735	7,388	2,325	845	8,415	3.821	23,937	73,639
Cod, true	12,280	13,015	12,320	19,115	6,225	27,625	1,950	7,915	11,415	14,305	8,350	2,995	137,510
FILLETS:													
Cod, rock	33,193	161,738	30,615	101,919	85,882	38,826	115,234	31,687	68,135	33,165	21,348	54,646	776,388
Cod, true	9,539	17,086	51,427	37,906	8,853	30,067	6,730	18,510	18,202	15,309	15,186	17,701	246,516
Flounder	8,886	29,570	19,189	3,474	2,415	375	195		840	36,670	15,777	3,291	120,682
Lingcod	11,335	19,614	22,207	18,846	3,005	65,812	27,320	23,157	51,235	30,849	69,405	1,202	343,987
SOLE: English	7,517	67,517	85,742	65,632	40,314	1,380	2,690	3,000	67,156	19,000	11,106	26,120	397,174
Petrale	2,250	8,393	7,856	83,200	53,384	86,556	42,048	49,401	65,283	27,019	16,521	18,746	460,657
Other	26,406	50,668	49,943	29,508	124,078	39,266	8,328	5,724	1,485	11,592	600	12,338	359,936
Other fillets						97,197	42,178	16,623	12,181	25,808	30,096		224,083
Livers and Viscera								6,355	623		37	622	7,637
Flounder	648												648
Halibut				806		2,271,087	1,911,435	2,784,490	4,507	4,860	6,385	878	6,984,448
Lingcod	72,613	39,927	13,042	36,253	27,217	168,223	44,125	65,920	56,894	64,712	5,278	14,528	608,732
Mackerel							230			130			360
Sablefish	580	19,010	9,200		18,777	9,160	67,132	210,125	482,705	499,862	399,021	126,733	1,842,305
Herring, sea		1,280	15,015	1,119	9,415								26,829
Pilchard				35,555	5,980								41,535
SALMON: Pink								5,728	690	42,020	80		48,518
King or Chinook				1,003	8,395	112,037	374,424	499,129	550,494	587,842	171,072	19,368	2,323,764
Silver or Coho			10,530			500	81,280	167,265	773,290	762,000	483,516	109,791	2,388,172
Fall or Chum									510	27,915	174,584	515,666	718,675
Steelhead trout			150										150
Unclassified							327		1,837	11,315	3,015	86	16,580
Shad		735	1,655			700	150						3,240
Shad roe						2,300		800					3,100
Smelt		5,340	1,008	92,164	12,364	5,379	35,308	95,038	75,024	18,790	7,776	18,626	366,817
Sole	700	1,130	14,238	6,669	2,305	2,045	3,115			2,115			32,317
Tuna			315					143,754	328,767	55,537	86,734	4,787	619,894
Unclassified	1,680	702	1,051	3,486	2,781	19,014	60,044	2,426	2,273	22,899	1,185	900	118,441
Total	**327,600**	**899,769**	**529,973**	**1,161,633**	**803,754**	**3,141,704**	**3,009,851**	**4,210,381**	**2,764,381**	**2,465,469**	**1,627,675**	**1,318,591**	**22,260,781**
Shellfish:													
Shrimp and Shrimpmeat			17,074		165		100			1,221	1,742		20,302
Clams and Clammeat	2,150	4,518	7,420	5,700	61,770	20,113	6,001	11,658	10,421	1,268	65	2,930	20,302
Crabs and Crabmeat	100	26,901	17,192	26,298	58,824	130,039	21,305	5,865	450	98	1,345	553	288,970
Lobster Tails, spiny	1,804		1,110	2,244	11,700	250		3,394				672	21,174
Oysters	23,939	12,515	15,048	30,912	32,534	41,475	8,254	894	4,114	5,515	11,160	10,883	197,243
Squid			150	20,360	1,046	4,540		9,113	246	375		26,181	62,011
Unclassified	685	866		5,062	1,675	3,424		800					12,512
Total	**28,678**	**44,800**	**57,994**	**90,576**	**167,714**	**199,841**	**35,660**	**31,724**	**15,231**	**8,477**	**14,312**	**41,219**	**736,226**
Total Fish and Shellfish	**356,278**	**944,569**	**587,967**	**1,252,209**	**971,468**	**3,341,545**	**3,045,511**	**4,242,105**	**2,779,612**	**2,473,946**	**1,641,987**	**1,359,810**	**22,997,007**

keeping its facilities for turning out the military packages.

At Eureka, Calif., the Theo. Weissich Fish Co. also entered actively into a program of consumer package production in the modern manner with an attractive lithographed-cellophane wrapper applied by modern Package Machinery Co. equipment.

Dungeness Crabmeat Freezing

Freezing of Pacific crabmeat underwent sharp revision in 1949 as result of the unfavorable marketing experience which beset the astonishing production of this item in 1948. In that year there was extreme interest in packing frozen crabmeat,

1949—COASTWISE RECEIPTS AT SEATTLE FROM ALASKA—1949

		Dec., 1948 Pounds	Jan., 1949 Pounds	February Pounds	March Pounds	April Pounds	May Pounds	June Pounds	July Pounds	August Pounds	September Pounds	October Pounds	November Pounds	Total 1949 Pounds	Total 1948 Pounds
Fresh and Frozen															
Cod, true	Frozen	.....	.....	.....	.....	.....	.....	3,050	.....	.....	.....	.....	.....	3,050	400
Dolly Varden Trout	Frozen	.....	1,267	.....	.....	.....	5,733	5,893	1,072	.....	1,270	.....	.....	15,235	30,082
Halibut		.....	.....	.....	.....	.....	13,692	.....	.....	.....	.....	.....	.....	13,692	210,807
Halibut	Frozen	.....	2,024,425	501,686	426,246	53,817	41,828	1,709,577	1,105,961	1,644,272	1,363,938	550,504	1,992,147	11,414,401	8,283,858
Herring	Frozen	.....	.....	.....	.....	80,000	.....	.....	.....	.....	.....	3,100	.....	83,100	180,000
Lingcod	Frozen	625	14,177	3,301	885	.....	.....	470	.....	4,433	.....	7,903	22,495	54,289	26,675
Rockfish	Frozen	.....	3,451	.....	625	.....	.....	.....	.....	.....	.....	.....	.....	4,076	2,610
Shrimp		.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	9,770
Shrimp	Frozen	.....	.....	.....	9,000	12,000	1,500	.....	.....	.....	.....	.....	.....	22,500	17,330
Sablefish	Frozen	1,077	109,471	168,703	173,810	7,990	.....	10,133	90,031	173,250	201,106	195,216	187,927	1,318,714	1,313,067
Shrimpmeat		700	.....	.....	.....	.....	.....	8,500	.....	.....	2,880	3,984	.....	16,064	700
Shrimpmeat	Frozen	.....	66,635	43,962	6,120	2,220	43,596	61,849	61,632	56,624	.....	21,705	.....	364,343	333,655
SALMON:															
Chinook		.....	.....	5,433	42,938	96,255	62,658	33,118	.....	.....	.....	.....	.....	240,412	183,803
Chinook	Frozen	4,382	145,511	49,262	137,276	6,958	4,600	145,459	101,629	455,123	36,539	146,723	54,585	1,288,047	1,014,843
Chum	Frozen	40,000	495,926	67,839	.....	.....	.....	.....	.....	110,885	128,375	1,145	26,300	870,470	154,463
Pink	Frozen	.....	98,953	1,100	.....	.....	.....	.....	.....	700	157,980	3,390	1,108	263,231	97,172
Silver		.....	.....	.....	.....	.....	.....	245	.....	.....	.....	.....	.....	245	610
Silver	Frozen	57,338	649,072	297,835	136,890	8,800	.....	300	17,140	129,592	98,524	661,474	221,627	2,278,592	1,200,098
Sockeye	Frozen	.....	2,731	.....	.....	.....	.....	.....	.....	563,164	.....	.....	.....	565,895	993
Unclassified	Frozen	.....	711	.....	1,864	.....	.....	.....	.....	.....	.....	.....	.....	2,575	144,465
Crabs	Frozen	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	15,825
Crabmeat	Frozen	.....	3,920	.....	.....	300	64,640	17,500	47,863	8,250	16,170	145,380	.....	304,023	39,941
Clams	Frozen	.....	.....	.....	.....	.....	.....	15,105	.....	.....	.....	.....	.....	15,105	.....
Tuna, Albacore	Frozen	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	11,700
Fillets, other	Frozen	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	520	520	.....
Unclassified	Frozen	.....	1,129	183	.....	.....	.....	.....	.....	.....	2,100	.....	.....	3,412	.....
Clammeat	Frozen	.....	.....	.....	.....	.....	.....	13,734	.....	.....	.....	.....	.....	13,734	.....
Miscellaneous	Frozen	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	422
Total Fresh		700	.....	5,443	42,938	96,255	76,350	41,863	.....	.....	2,880	3,984	.....	270,413	405,690
Total Frozen		103,422	3,617,379	1,133,871	892,716	172,085	161,897	1,983,070	1,425,328	3,146,293	2,006,002	1,736,540	2,506,709	18,885,312	12,867,599
GRAND TOTAL		104,122	3,617,379	1,139,314	935,654	268,340	238,247	2,024,933	1,425,328	3,146,293	2,008,882	1,740,524	2,506,709	19,155,725	13,273,289
Cured Fish:															
Herring, salted	Bbls.	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	6
Herring, salted	½ Bbls.	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	510
Sablefish, salted	Bbls.	.....	32	.....	.....	.....	.....	119	13	105	17	60	23	369	394
Salmon, mild cured	Tcs.	.....	22	.....	3	5	130	1,200	1,042	943	459	48	100	3,952	4,469
Salmon, salted	½ Tcs.	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	8
Salmon, salted	Bbls.	.....	.....	.....	3	5	.....	130	15	74	111	144	.....	482	182
Unclassified	Bbls.	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	72
Miscellaneous															
Livers	Frozen														
Grayfish	Lbs.	.....	825	1,116	1,862	11,217	20,605	3,827	5,947	2,580	4,166	3,785	27,818	83,748	21,799
Halibut Viscera	Lbs.	.....	72,397	66,178	.....	.....	164,967	296,149	158,029	18,341	73,960	786	15,768	866,575	760,204
Sablefish Viscera	Lbs.	.....	106,311	30,485	.....	140	974	2,023	12,169	15,414	65,613	4,948	34,987	273,064	128,636
Unclassified	Lbs.	.....	60,952	42,772	.....	2,459	29,084	65,032	46,903	16,020	11,192	5,053	88,052	367,519	30,235

Holdings of Frozen Salmon in Canada by Months

Year	Jan. Pounds	Feb. Pounds	March Pounds	April Pounds	May Pounds	June Pounds	July Pounds	Aug. Pounds	Sept. Pounds	Oct. Pounds	Nov. Pounds	Dec. Pounds	Year
1943	6,388,157	4,182,422	3,187,367	1,424,622	749,130	421,899	618,566	1,292,092	2,491,083	3,922,968	7,861,284	9,720,826	1943
1944	8,245,459	6,228,542	4,036,324	2,572,067	1,723,599	1,192,453	1,323,970	2,225,799	4,458,686	7,569,646	9,592,929	8,525,062	1944
1945	5,754,484	4,212,779	3,064,075	1,916,384	1,224,894	653,660	975,614	2,603,913	5,848,648	8,889,338	12,264,609	11,286,939	1945
1946	8,995,555	6,201,817	4,664,805	2,859,525	1,470,544	719,534	1,477,539	2,310,009	4,287,429	6,910,578	10,414,810	12,529,428	1946
1947	10,484,688	8,068,793	5,641,958	4,244,254	3,066,183	2,041,997	1,849,142	3,317,623	4,788,724	6,115,604	10,991,495	11,346,880	1947
1948	12,471,000	10,916,000	8,925,000	5,322,000	3,454,000	2,821,000	2,721,000	3,992,000	4,679,000	6,007,000	12,481,000	10,379,000	1948
1949	9,301,000	7,786,000	5,574,000	3,880,000	2,993,000	2,466,000	3,058,000	4,446,000	7,167,000	9,206,000	11,663,000	(1)	1949

(1) Data not available.

Note—All figures in accordance with latest reports.

Source—Dominion Bureau of Statistics—Department of Trade and Commerce—monthly reports.

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with the result that production soared to 478,000 lbs.

This production was marketed only with extreme difficulty, and in 1949 interest turned away from freezing crabmeat and back to the canned product.

As result, in 1949 reported packs of frozen crabmeat dropped to 254,000 lbs.

King Crab Freezing Up

It is notable that the freezing of King crabmeat in 1949 rose as the packing of Dungeness crabmeat by freezing declined. There was, of course, no canning of King crab in 1949.

Operations of King crab expeditions — of which there were three—

1949—Alaska Frozen Fish Holdings—1949

(Includes American-caught fish frozen in bond in British Columbia)

Variety	Dec. 1948 Pounds	Jan. 1949 Pounds	February Pounds	March Pounds	April Pounds	May Pounds	June Pounds	July Pounds	August Pounds	September Pounds	October Pounds	November Pounds
Bait and Animal Food	17,126	16,126	589,200	2,490,000	2,538,450	1,105,040	615,500	596,542	479,099	607,935	64,835	567,034
Cod, rock	17,869	11,545	11,545	10,900	10,000	2,015	70,280	618	9,941	10,173	67,841	28,659
Cod, true	......	......	......	......	......	......	6,981	13,878	31,640	31,640	......	......
Fillets:												
Cod, rock	1,750	900	900	700	......	......	4,392	4,200	......	......	......	......
Lingcod	......	2,985	......	......	......	839	......	......	......	......	......	......
Other fillets	......	......	......	......	......	......	2,734	......	1,025	......	......	40,773
Halibut	4,158,187	1,590,092	725,963	66,873	30,260	9,220,551	12,607,768	15,667,552	13,053,057	10,694,567	7,870,399	5,492,652
Lingcod	9,752	......	146	146	146	3,734	21,084	37,032	56,308	59,559	31,511	13,655
Sablefish	1,071,174	856,406	591,594	347,741	259,286	511,403	394,656	1,074,799	2,202,947	2,416,958	1,803,834	1,444,064
Herring, Sea	......	......	......	......	90,000	50,000	30,000	5,000	......	......	......	......
Livers and Viscera	......	......	......	......	......	......	......	184,313	266,181	103,717	92,630	41,851
Salmon:												
King or Chinook	486,784	380,279	97,618	13,036	7,821	367,357	646,994	810,149	1,057,717	900,462	437,379	388,051
Silver or Coho	1,296,336	587,281	174,356	13,947	6,942	2,312	116,498	1,518,687	3,815,093	3,243,948	2,336,963	2,046,068
Fall or Chum	125,780	111,854	6,291	3,791	982	988	470	14,688	343,107	175,059	194,885	87,903
Pink	4,197	4,092	......	......	......	......	......	107,595	1,391,995	94,545	80,670	49,845
Steelhead Trout	136	......	......	......	348	355	......	56	800	81	81	75
Unclassified	165,401	78	137,607	56,538	9,667	68,758	80,436	143,274	936,853	438,323	371,401	159,883
Unclassified	1,586	1,586	1,586	679	......	2,992	1,412	5,762	6,005	4,376	4,423	......
Total	7,356,078	3,563,224	2,336,806	3,004,351	2,953,902	11,336,344	14,599,205	20,184,145	23,651,768	18,781,343	13,356,852	10,360,513
Cured Fish												
Herring Salted	......	......	......	......	......	......	......	......	320,745	320,745	......	......
Salmon Mild Cured	1,000	......	......	......	......	167,837	333,636	200,334	200,329	......	......	......
Other Salted	......	......	......	......	......	......	......	......	......	5,600	......	......
Smoked Fish	......	......	......	......	......	......	......	......	......	......	......	......
Total	1,000	......	......	......	......	167,837	333,636	200,334	521,074	326,345	......	......

1949—Alaska Custom Cold Storage Freezings—1949

Company	Location	Halibut Pounds	Salmon Pounds	Fillets Pounds	Sablefish Pounds	Miscellaneous Pounds	Grand Total Pounds
Alaska Fish & Farm Products	Anchorage	......	75,000	......	......	......	75,000
Aleutian Cold Storage Co.	Sand Point	1,339,005	25,646	6,630	1,309	......	1,372,590
Juneau Cold Storage Co.	Juneau	2,477,915	2,645,058	......	1,358,068	......	6,481,041
Ketchikan Cold Storage Co.	Ketchikan	4,435,000	3,185,000	......	202,000	......	7,822,000
Pelican Cold Storage Co.	Pelican	2,118,740	2,268,570	......	598,282	......	4,985,592
Petersburg Cold Storage Co.	Petersburg	1,722,461	423,216	......	930,517	......	3,076,194
Seward Cold Storage Co.	Seward	445,000	......	......	......	......	445,000
Sitka Cold Storage Co.	Sitka	2,018,952	1,654,231	......	......	263,753	3,936,936
Wrangell Cold Storage Co.	Wrangell	496,598	417,919	......	114,844	......	1,029,361
Total		15,053,671	10,694,640	6,630	3,205,020	263,753	29,223,714

NOTE—Quantities of fish given in this table represent entire amounts frozen in these Alaska custom cold storages; whereas in the general frozen fish table elsewhere in this department the quantities credited to customs storages represent fish frozen by privae parties from whom specific data has not been received and reported separately.

1949—WASHINGTON FROZEN FISH HOLDINGS—1949

Species	Dec.,1948	Jan., 1949	February	March	April	May	June	July	August	September	October	November
	Pounds	Pounds	Pounds	Pounds	Pounds	Pounds	Pounds	Pounds	Pounds	Pounds	Pounds	Pounds
Bait and Animal Food	534,541	795,241	665,692	601,251	775,001	894,702	967,776	784,327	584,067	437,521	339,152	606,533
Cod, rock	3,405	7,821	16,935	19,678	7,294	15,045	23,291	16,136	14,883	18,843	24,937	251,995
Cod, true	34,309	49,861	29,066	30,495	35,622	57,384	71,920	62,342	51,450	50,914	93,849	28,785
FILLETS:												
Cod, rock	170,935	249,932	159,211	127,263	204,506	194,856	285,133	261,968	266,708	267,500	264,969	117,278
Cod, true	102,004	107,785	125,767	96,389	88,099	77,764	59,802	49,647	53,730	74,814	49,373	43,910
Flounder	27,221	17,903	42,931	30,975	25,232	25,435	21,972	32,421	13,480	25,310	14,672	5,098
Lingcod	115,776	114,954	114,459	101,232	88,246	144,833	146,442	127,008	141,388	146,446	172,254	51,892
SOLE: Dover	2,490	2,490	2,490	......	......	......	......	95	3,991	......	......	155
English	66,235	42,988	91,020	85,664	101,943	84,767	27,440	40,030	100,422	87,085	39,779	15,426
Petrale	123,392	131,588	76,582	108,415	81,041	128,125	154,440	199,705	178,771	174,965	189,159	104,885
Other	59,545	59,583	40,754	48,403	39,452	90,273	55,184	53,093	34,468	48,537	12,489	137,325
Other fillets	25,073	22,381	18,920	14,362	12,730	13,955	17,498	28,078	21,909	4,865	7,296	1,690
Flounder	104	5,104	......	......	......	150	180	180	4,171	150	150	11,672
Halibut	3,320,578	2,417,897	1,817,719	972,435	125,583	2,113,007	3,600,051	5,554,346	4,838,067	161,315	3,849,317	2,897,740
Herring, sea	1,369	3,934	17,514	18,093	63,002	19,628	18,522	16,065	10,990	9,650	8,702	955
Lingcod	128,743	147,960	56,349	72,441	63,297	255,703	211,891	266,628	300,635	309,615	283,462	223,353
Mackerel	8,646	2,705	2,689	2,688	2,688	2,608	215	......	......	350	350	570
Pilchard	1,129	1,129	1,009	31,024	23,824	20,349	21,174	21,174	21,174	19,134	19,134	17,934
Sablefish	1,234,455	2,314,146	949,308	815,641	548,141	562,988	550,352	732,856	1,271,932	1,959,880	2,431,264	2,064,288
Livers and Viscera	......	......	......	......	......	......	......	105,184	105,761	105,258	204,127	235,491
SALMON:												
King or Chinook	1,077,991	964,404	619,331	385,842	266,065	426,520	605,159	1,042,708	1,439,333	2,126,697	2,385,928	1,575,234
Silver or Coho	718,441	821,188	803,714	539,646	191,383	141,386	132,184	258,511	947,632	1,554,378	2,013,602	1,043,849
Fall or Chum	776,459	604,806	446,476	356,305	276,619	149,055	119,534	68,209	45,827	39,932	210,002	724,839
Pink	180	936	3,364	3,694	3,047	880	880	7,708	5,298	22,388	20,408	7,850
Steelhead trout	8,731	7,140	5,489	1,359	1,359	1,344	1,344	1,344	1,344	1,344	1,344	1,458
Unclassified	4,430	10,379	3,523	6,563	3,657	1,631	6,253	9,917	8,375	17,586	18,675	46,097
Shad	726	1,461	2,616	2,360	870	2,315	1,595	1,595	1,595	2,275	1,595	2,275
Shad roe	......	......	......	......	......	2,100	400	1,300	......	......	......	......
Smelt	138,192	75,303	34,198	121,125	138,113	112,481	137,126	170,288	393,552	294,683	285,974	235,680
Sole	29,579	9,199	18,273	23,366	13,128	18,247	38,930	11,543	......	8,461	8,194	822
Tuna	31,544	31,515	5,339	6,239	3,535	3,737	2,536	113,762	600,146	243,555	129,775	19,409
Unclassified	36,252	6,335	5,693	37,487	47,830	56,448	121,384	82,063	108,032	148,501	96,732	102,757
Total	**8,782,615**	**9,028,068**	**6,176,431**	**4,660,435**	**3,231,307**	**5,617,716**	**7,400,608**	**10,120,231**	**11,569,131**	**12,361,952**	**13,176,664**	**10,577,245**
Shellfish:												
Clams and Clammeat	18,801	46,261	25,468	35,592	137,633	96,470	78,420	61,455	53,840	59,231	60,486	50,021
Crabs and Crabmeat	41,207	19,180	46,463	72,062	123,497	256,914	230,520	202,992	121,857	71,697	89,077	127,550
Lobsters tails, spiny	2,733	10,363	9,602	9,934	28,426	22,314	27,589	25,471	20,119	13,672	6,672	18,666
Oysters	37,249	21,350	21,874	32,896	32,584	77,053	84,325	64,875	47,870	41,447	52,216	91,800
Scallops	35,095	11,365	41,272	36,350	12,996	33,934	15,218	34,255	37,742	20,508	43,579	27,136
Shrimp and Shrimpmeat	150,773	193,918	221,851	193,144	208,175	170,763	205,083	157,437	107,332	76,177	106,779	94,180
Squid	26,793	15,603	4,768	22,306	14,034	15,041	11,474	18,479	16,512	15,473	44,785	37,612
Unclassified	485	2,771	3,155	7,566	9,411	13,193	23,803	746	1,103	11,376	666	1,990
Total	**313,136**	**320,811**	**374,453**	**409,850**	**566,756**	**685,682**	**676,432**	**565,710**	**406,375**	**309,581**	**404,260**	**448,955**
Total Fish and Shellfish:	**9,095,751**	**9,348,879**	**6,550,884**	**5,070,285**	**3,798,063**	**6,303,398**	**8,077,040**	**10,685,941**	**11,975,506**	**12,671,533**	**13,580,924**	**11,026,200**
Cured Fish:												
Herring, salted	336,193	324,580	299,148	281,548	266,079	252,485	235,082	224,528	230,826	229,597	279,391	234,309
Salmon, mild cured	2,599,311	2,082,300	1,203,095	649,792	130,907	50,950	1,319,500	2,827,000	4,040,400	4,264,125	3,904,800	3,320,488
Other, salted	209,228	177,504	161,683	153,882	171,147	150,794	132,709	141,219	139,157	167,594	421,380	89,322
Smoked Fish	40,648	36,692	39,608	60,631	53,030	46,978	43,782	36,787	47,182	32,124	100,461	75,293
Total Cured Fish	**3,185,380**	**2,621,076**	**1,703,534**	**1,145,853**	**621,163**	**501,207**	**1,731,073**	**3,229,534**	**4,457,565**	**4,693,440**	**4,706,032**	**3,719,412**

benefitted by accumulated experience in 1949 and the quantity of King crabmeat frozen reached 519,000 lbs., as compared with 209,000 lbs. the year before.

Clam and Shrimp Freezing Declines; Oysters Rise

Reported freezing of shrimp and clam meats in 1949 showed definite reduction from levels of the previous year, but there was a sharp advance in the freezing of shucked oysters. This doubtless followed in some degree as result of the difficulties imposed by federal authorities on the canning of Pacific oysters; but may have been influenced as well by growing appreciation of the market for properly frozen oysters.

1949—ALASKA FISH FREEZINGS BY MONTHS—1949

(Includes American-Caught Fish Frozen in Bond in British Columbia)

Species	Dec. 1948 Pounds	Jan. 1949 Pounds	February Pounds	March Pounds	April Pounds	May Pounds	June Pounds	July Pounds	August Pounds	September Pounds	October Pounds	November Pounds	Total Pounds
Bait and Animal Food	......	......	......	1,901,600	1,145,500	66,912	15,400	22,942	8,897	13,608	9,782	4,883	3,189,524
Cod, rock	......	......	......	......	......	6,268	2,875	7	731	240	28	......	10,149
Cod, true	......	......	......	......	......	......	6,981	17,201	17,632	17,632	......	......	59,446
FILLETS:													
Cod, rock	......	......	......	......	......	4,385	7	100	......	......	......	......	4,492
Lingcod	......	......	......	......	......	839	......	......	......	......	......	......	839
Other fillets	......	......	......	......	......	......	1,245	......	2,250	......	......	36,350	39,845
Halibut	......	......	......	......	......	10,579,414	6,947,605	3,967,029	351,003	129,077	23,388	2,732	22,000,248
Lingcod	......	......	......	......	......	3,588	13,566	19,627	14,617	200	......	......	51,598
Sablefish	......	......	......	......	92,373	221,364	212,210	680,921	1,386,608	794,740	200,016	22,275	3,610,507
Herring, sea	......	......	......	......	90,000	......	......	......	......	......	......	......	90,000
SALMON:													
King or Chinook	1,397	432	......	......	......	450,981	450,302	450,587	375,695	227,895	24,836	27,101	2,009,226
Silver or Coho	......	......	......	......	......	2,645	137,203	1,772,923	2,510,281	1,347,893	594	......	5,771,539
Fall or Chum	......	......	......	......	......	22	517	13,252	330,539	192,255	298,651	......	835,236
Pink	......	......	......	......	......	......	4,979	107,572	1,371,154	455,204	......	......	1,938,909
Steelhead trout	......	......	......	......	4,601	5,398	1,842	56	3,364	25	......	......	15,286
Unclassified	......	......	......	......	......	59,091	61,878	132,816	816,487	186,710	......	......	1,256,982
Livers and Viscera	......	......	......	......	......	......	......	192,815	140,928	80,846	19,181	......	433,770
Unclassified	......	......	......	......	......	6,374	753	2,123	1,162	287	47	......	10,746
Total	1,397	432	......	1,901,600	1,332,474	11,407,281	7,857,363	7,379,971	7,331,348	3,446,612	576,523	93,341	41,328,342
Shellfish:													
Clams and Clammeat	......	......	......	......	......	......	25,923	......	......	1,800	......	......	27,723
Crabs and Crabmeat	......	......	......	......	......	......	......	76,260	4,650	21,100	14,760	......	116,770
Unclassified	......	......	......	......	......	......	......	......	......	5,000	......	......	5,000
Total	......	......	......	......	......	......	25,923	76,260	4,650	27,900	14,760	......	149,493
Total Fish and Shellfish	1,397	432	......	1,901,600	1,332,474	11,407,281	7,883,286	7,456,231	7,335,998	3,474,512	591,283	93,341	41,477,835

Alaska Frozen Fish Packs--1928 to 1949

YEAR	HALIBUT, Pounds	SALMON, Pounds	STEELHEAD AND FILLETS Pounds	SABLEFISH, Pounds	MISCELLANEOUS, Pounds	Total Pounds	YEAR
1928	9,328,837	7,275,009	4,105	623,857	161,332	**17,393,140**	1928
1929	11,789,477	5,819,643	3,000	514,405	268,857	**18,395,382**	1929
1930	11,859,772	6,217,498	......	511,249	168,870	**18,757,389**	1930
1931	6,641,793	5,071,593	4,431	254,856	594,392	**12,567,065**	1931
1932	2,332,728	5,058,857	1,275	51,284	61,461	**7,505,605**	1932
1933	5,851,556	4,102,999	3,747	91,066	93,841	**10,143,209**	1933
1934	6,133,142	5,534,916	27,272	167,725	155,453	**12,018,508**	1934
1935	5,021,708	4,662,272	7,600	633,412	221,066	**10,546,058**	1935
1936	7,287,861	5,284,030	24,091	834,140	88,705	**13,518,827**	1936
1937	7,465,551	5,794,466	2,500	1,924,817	305,149	**15,492,483**	1937
1938	6,904,640	7,918,897	4,274	773,787	68,305	**15,669,903**	1938
1939	6,389,488	4,783,751	2,465	1,525,600	280,794	**12,982,098**	1939
1940	8,310,553	6,304,064	11,413	1,824,532	682,721	**17,133,283**	1940
1941	7,564,940	6,119,050	......	1,720,977	924,420	**16,329,387**	1941
1942	8,720,056	7,908,717	8,606	4,851,974	361,554	**21,850,907**	1942
1943	11,068,724	9,114,694	......	3,986,438	825,505	**24,995,361**	1943
1944	19,214,203	10,753,715	......	5,413,503	1,892,846	**37,274,267**	1944
1945	19,353,649	13,374,086	......	5,955,388	3,396,849	**42,079,972**	1945
1946	14,966,616	12,036,956	30,000	4,519,989	2,075,530	**33,629,091**	1946
1947	20,638,301	10,197,755	4,597	886,535	383,473	**32,110,661**	1947
1948	26,020,134	9,582,232	165,370	5,065,056	5,290	**40,838,082**	1948
1949	20,914,221	12,222,337	1,309	3,772,851	271,901	**37,182,619**	1949

NOTE:—Since 1942 Steelheads have been combined with Salmon. Figures given in this column cover the quantities of frozen fillets of all varieties of fish reported. Data in this table based on individual reports of packers and custom cold storages to this journal.

A Fisherman depends on his Boat !

You know the old saying about a carpenter and his tools! It may hold true for a carpenter, but with a fisherman it's different. If his boat is poorly built, or unseaworthy or faulty in some way—he won't come in with the high catches! That's why AVONDALE TUNA CLIPPERS are queens of the fleet—because a fisherman knows they'll stand up to a sea, that they'll range with the best, that everything to the last scupper is designed and built to perform with the best. And then too—AVONDALE CLIPPERS are built of STEEL!

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1949—PACIFIC STATES FROZEN FISH BY MONTHS—1949

(ALASKA FREEZING NOT INCLUDED)

Varieties	Dec., 1948 Pounds	Jan., 1949 Pounds	February Pounds	March Pounds	April Pounds	May Pounds	June Pounds	July Pounds	August Pounds	September Pounds	October Pounds	November Pounds	Total Pounds
Bait and Animal Food	193,485	528,824	178,979	672,301	452,502	160,665	222,368	145,211	229,075	192,577	164,467	477,262	3,617,716
Cod	12,280	13,015	12,320	19,115	6,225	27,900	1,950	7,915	20,617	14,305	8,350	2,995	146,987
FILLETS:													
Cod	9,539	17,086	51,427	37,951	9,143	30,067	6,730	18,570	18,202	15,309	15,986	17,701	247,711
Flounders (including Sole)	72,754	174,789	166,475	198,604	160,927	134,896	84,724	233,130	674,853	579,118	242,975	72,180	2,795,425
Lingcod	14,645	20,909	22,207	19,210	6,335	66,432	27,560	31,036	58,617	50,456	73,990	1,202	392,599
Mackerel	5,581	2,969	24,956	6,482	66,071					6,780			112,839
Other fillets	47,949	227,645	33,439	131,697	218,467	124,319	206,031	169,447	201,854	341,854	127,771	183,901	2,014,374
Flounders (including Sole and California Halibut)	7,284	1,230	14,648	13,001	32,215	10,671	19,414	16,190	2,345	2,280		380	119,658
Halibut						12,403,744	1,964,760	2,812,518	6,191	6,460	6,385	878	17,200,936
Herring, sea		1,280	17,051	1,119	9,415	2,189							31,054
Mackerel (except fillets, Spanish and King)							20,417	2,464	20,363	47,747	26,208	13,946	131,145
Sablefish	725	19,010	9,200	512	19,175	11,612	73,079	219,071	548,512	528,398	422,402	127,320	1,979,016
SALMON:													
King or Chinook				1,003	660	122,174	376,749	504,863	577,391	686,047	193,018	20,916	2,482,821
Silver or Coho	7,459					500	81,670	180,576	840,904	792,278	520,775	129,174	2,553,336
Fall or Chum	3,334						1,955			27,923	222,843	531,522	787,577
Pink								6,933	2,128	42,020	80		51,161
Steelhead Trout	4,080					1,345	664	10,102	20,776	10,761	1,702	5,799	55,229
Unclassified					2,487		327	4,540	66,494	156,038	3,569	86	233,541
Shad						25,552	38,345						63,897
Shad Roe						2,455	6,694						9,149
Smelt		5,340	1,208	433,429	60,015	5,379	35,308	95,213	75,024	19,680	9,576	18,626	758,798
Swordfish									687	716	4,042	890	6,335
Tuna	489,006		141,997		900		11,670	260,355	685,099	75,266	91,007	8,019	1,763,319
Other saltwater fish	295,775	239,082	235,067	479,117	262,840	531,291	509,439	516,791	726,047	585,164	353,355	234,844	4,968,812
Total	**1,163,896**	**1,251,179**	**908,974**	**2,013,541**	**1,307,377**	**13,661,191**	**3,689,854**	**5,234,925**	**4,775,179**	**4,181,177**	**2,488,501**	**1,847,641**	**42,523,435**
Shellfish:													
Clams	3,138	2,617	23,573	7,141	87,459	56,884	6,343	12,310	11,461	48,323	4,747	4,152	268,148
Crabs (including crabmeat)	12,376	35,239	19,592	27,267	73,099	169,792	55,499	13,557	3,280	2,848	1,545	1,218	415,312
Lobster tails	46,006	58,405	73,300	49,271	30,575	250		3,394	2,026	9,482	30,375	182,155	485,239
Oysters	25,743	14,694	15,433	35,460	35,630	42,753	8,686	1,074	4,814	6,631	11,160	12,595	214,673
Shrimp (including Shrimpmeat)	230,099	215,488	135,033	191,818	31,348	450	22,375	21,440	5,621	6,095	164,081	368,937	1,392,785
Squid	19,041	20,442	150	89,269	99,444	85,410	135,695	32,201	295	375	57,350	26,181	565,853
Other Shellfish	685	14,966	6,536	6,626	3,296	3,424	1,531	1,348	2,575		496	355	41,838
Total Shellfish	**337,088**	**361,851**	**273,617**	**406,852**	**360,851**	**358,963**	**230,129**	**85,324**	**30,072**	**73,754**	**269,754**	**595,593**	**3,383,848**
Total Fish and Shellfish	**1,500,984**	**1,613,030**	**1,182,591**	**2,420,393**	**1,668,228**	**14,020,154**	**3,919,983**	**5,320,249**	**4,805,251**	**4,254,931**	**2,758,255**	**2,443,234**	**45,907,283**
1948 Totals:													
Fish	1,163,896	859,438	373,661	2,227,864	1,561,368	5,355,780	4,042,374	6,473,394	3,561,118	3,912,369	3,245,795	1,936,756	34,713,813
Shellfish	337,088	256,335	250,524	359,259	153,885	347,312	149,583	50,162	55,121	28,031	144,290	196,435	2,328,025
1947 Totals:													
Fish	768,676	470,495	721,710	630,103	452,933	2,507,826	2,057,972	4,080,403	7,644,552	4,695,322	2,406,065	2,110,800	28,546,857
Shellfish	175,789	136,511	329,219	326,179	284,398	135,136	175,371	110,964	139,488	257,564	322,480	212,800	2,605,899
1946 Totals:													
Fish	663,363	480,824	1,048,588	1,177,120	1,494,538	4,431,074	5,770,129	4,987,946	5,237,465	4,424,173	5,156,746	3,312,396	36,982,766
Shellfish	190,012	300,788	224,902	199,328	269,980	286,704	181,552	93,817	67,220	37,659	156,792	173,888	2,182,642

1949—OREGON FISH FREEZINGS BY MONTHS—1949

Variety	Dec. 1948 Pounds	Jan. 1949 Pounds	February Pounds	March Pounds	April Pounds	May Pounds	June Pounds	July Pounds	August Pounds	September Pounds	October Pounds	November Pounds	Total Pounds
Bait and Animal Food	13,930				1,700	245		280				77,652	93,807
Cod, rock	10,393		165	6,648	2,082			1,900	1,400			175	22,763
Cod, true						275			9,202				9,477
FILLETS:													
Cod, rock	12,512	63,942		14,710	24,650	14,357	18,935	3,195	19,098	9,310	390	27,355	208,454
Cod, true				45	45		90	60			800		1,040
Flounder	3,155	914		200	230	890	140	20	2,189	41,507	608	1,235	51,088
Lingcod	3,310	895			3,330	620	315	1,742	1,245	587	4,585		16,629
SOLE: Dover							7,160	68,045	258,508	249,399	50,698	4,766	638,576
English	3,920	6,219	2,375	2,415	7,940	556	1,670	3,435	6,295	3,210	19,195	1,894	59,124
Petrale	6,410	7,809		11,965	26,175		25,225	56,085	24,730	9,755	11,070	1,180	180,404
Rex									990	1,170	280	2,060	4,500
Other					1,480			44,235	245,307	179,436	115,491		585,949
Other fillets				5		3,650	3,060			5,233			11,948
Pilchard						337		605					942
Flounders	2,328												2,328
Halibut						115,314	46,522	27,028	684	1,600			191,148
Lingcod	2,998		7,776		1,025	2,080	938	3,528	3,146	1,953	10,618	1,246	35,308
Mackerel							215			240	110	60	625
Sablefish	145				88	800	2,549	8,651	64,817	27,874	22,967	587	128,478
Herring, sea			2,036	1,082		2,189							5,307
SALMON:													
King or Chinook				1,000		10,137	2,325	5,734	26,897	94,324	18,996	1,548	160,961
Silver or Coho	7,459			1,997			390	2,294	46,525	30,278	37,259	19,383	145,585
Fall or Chum	3,334									8	44,994	15,856	64,192
Steelhead trout	4,080					1,345	246	10,102	20,776	10,761	1,702	5,799	54,811
Unclassified	391							4,540	45,532	144,723	554		195,740
Shad						6,294	45,768						52,062
Shad roe						155	6,539						6,694
Smelt				345,305	46,641			175					392,121
Sole	4,256	100	410	280	40			220					5,306
Tuna	487,754		90,343				1,928,573	90,758	351,206				2,948,634
Unclassified	3,086	5,455	2,827	538	419	49,698	33,937	33,760	22,764	10,565	3,514	969	167,532
Livers and Viscera								32,930	257,383	122,112	40,959	55,775	509,159
Total	**569,461**	**85,334**	**105,932**	**386,190**	**115,845**	**208,942**	**2,124,597**	**399,322**	**1,408,694**	**944,045**	**384,790**	**217,540**	**6,950,692**
Shellfish:													
Shrimp and Shrimpmeat									352		625		977
Clams and Clammeat	608	1,099	15,033	1,021	25,479	36,771	342	652		47,055	4,682	1,222	133,964
Crabs and Crabmeat	11,644	1,748	620	329	7,360	28,767	15,590	1,793		190	50	185	68,276
Lobster Tails, spiny	84	55		11,080	18,425				826	7,282			37,752
Oysters			315	3,378	972	930	48	180	700	1,116			7,639
Squid					18,420	8,000							26,420
Total	**12,336**	**2,902**	**15,968**	**15,808**	**70,656**	**74,468**	**15,980**	**2,625**	**1,878**	**55,643**	**5,357**	**1,407**	**275,028**
Total Fish and Shellfish	**581,797**	**88,236**	**121,900**	**401,998**	**186,501**	**283,410**	**2,140,577**	**401,947**	**1,410,572**	**999,688**	**390,147**	**218,947**	**7,225,720**

1949—OREGON FROZEN FISH HOLDINGS—1949

Species	Dec., 1948 Pounds	Jan., 1949 Pounds	February Pounds	March Pounds	April Pounds	May Pounds	June Pounds	July Pounds	August Pounds	September Pounds	October Pounds	November Pounds
Bait and Animal Food	183,196	181,800	178,700	190,700	170,600	153,645	150,132	124,582	102,082	90,332	79,792	152,689
Cod, rock	4,067	99	792	2,580	3,612	782	1,262	3,732	4,446	782	1,564	2,901
Cod, true	106	106	106	106	....	275	....	250	9,580	4,871	2,586	2,586
FILLETS: Mackerel	....	....	....	....	115	....	....	....	....	....	....	....
Cod, rock	22,167	68,715	49,283	22,332	11,386	44,233	36,140	17,231	55,152	18,900	35,536	26,850
Cod, true	3,315	3,315	2,885	2,930	5	3,725	2,665	1,935	215	215	800	675
Flounder	54,270	50,472	50,872	40,429	38,250	3,604	38,430	38,814	36,909	108,634	36,059	14,745
Lingcod	8,019	10,806	13,132	7,170	11,643	7,835	2,220	4,575	....	10,032	18,669	5,889
SOLE: Dover	220,870	219,565	219,555	131,560	104,730	42,695	42,575	85,300	283,041	295,094	278,138	202,212
English	191,743	191,980	183,230	156,790	97,260	89,786	32,470	6,560	22,992	17,070	46,642	8,124
Petrale	164,028	159,958	147,470	77,055	84,720	36,240	47,855	63,230	68,520	71,890	81,435	9,650
Rex	....	....	....	....	....	....	....	....	700	1,870	150	10
Other	97,282	79,230	37,230	35,611	30,425	1,415	1,160	44,895	244,652	351,221	406,441	303,508
Other fillets	7,543	5,783	6,208	3,023	4,959	5,516	5,658	35,888	595	150,752	173,666	514
Flounder	672	....	....	1,080	....	36,960	960	....	....	....	....	....
Halibut	134,881	59,357	49,433	29,609	29,834	178,233	178,959	169,694	81,623	47,517	36,750	31,654
Herring, sea	3,423	2,648	4,488	12,688	8,920	2,189	3,749	3,749	3,539	2,601	2,501	1,606
Lingcod	....	....	11,488	10,317	6,478	15,285	13,773	16,283	20,875	19,051	24,951	14,248
Mackerel	....	....	....	115	97	148	467	327	1,575	453	481	533
Pilchard	....	....	....	....	....	237	237	3,062	219	237	237	237
Sablefish	90,702	52,315	45,297	19,541	17,610	5,725	13,298	18,321	74,896	101,691	144,042	74,464
SALMON												
King or Chinook	174,470	150,410	128,695	49,431	18,307	17,640	15,440	12,311	37,338	144,860	112,782	103,971
Silver or Coho	115,126	106,935	92,686	42,354	18,149	13,074	11,540	12,889	44,119	79,665	91,982	64,667
Fall or Chum	3,641	40,000	40,000	....	....	....	....	....	....	8	45,002	33,421
Pink	....	....	....	....	....	....	....	....	....	....	....	....
Steelhead trout	19,647	16,783	34,033	26,376	10,388	12,097	8,414	15,112	28,017	36,663	35,463	33,323
Unclassified	250,196	224,672	116,268	54,927	30,013	21,602	13,612	20,335	60,066	205,473	278,799	220,426
Livers and Viscera	....	....	....	....	....	....	....	71,419	273,962	358,828	279,320	177,047
Shad	26,265	29,411	9,617	8,737	13,917	35,782	70,702	52,568	20,949	20,305	19,570	19,570
Shad roe	90	40	40	35	....	9,397	19,045	17,163	9,458	16,253	13,048	....
Smelt	258,939	146,098	98,820	367,651	267,810	270,314	251,433	243,344	273,646	259,921	220,345	54,387
Sole	552	40	260	480	1,950	....	....	1,103	1,134	....	....	....
Tuna	694,844	266,556	3,137	186,563	2,285	2,285	662,150	77,621	226,927	2,056,591	2,271,884	1,124,751
Unclassified	18,585	22,519	17,591	19,991	11,682	64,835	92,651	137,980	115,043	144,724	165,509	147,486
Total	**2,760,158**	**2,099,899**	**1,541,316**	**1,500,181**	**995,145**	**1,075,554**	**1,716,997**	**1,300,273**	**2,102,270**	**4,616,504**	**4,904,144**	**2,832,144**
Shellfish:												
Clams and Clammeat	87,993	48,679	60,028	38,457	51,506	75,694	22,385	19,791	19,201	66,456	72,033	64,412
Crabs and Crabmeat	515	1,955	1,950	709	7,350	36,872	38,300	39,947	27,989	18,214	14,417	10,335
Lobster tails, spiny	874	748	600	12,231	28,370	2,127	22,417	25,263	30,337	35,792	17,901	22,866
Oysters	924	173	315	3,276	3,954	26,088	720	180	1,671	1,731	2,847	856
Scallops	3,420	3,135	2,450	2,279	1,249	1,659	4,193	1,624	4,826	3,186	1,708	843
Shrimp and Shrimpmeat	5,393	4,652	7,181	28,944	36,537	24,810	11,840	34,093	20,314	8,870	18,211	122,115
Squid	6,014	2,850	1,195	4,455	5,080	7,710	2,375	1,920	1,525	1,185	520	1,780
Unclassified	....	....	....	....	....	....	....	....	....	....	....	....
Total	**105,133**	**62,192**	**73,719**	**90,351**	**134,046**	**174,960**	**102,230**	**122,818**	**105,863**	**135,434**	**127,637**	**223,207**
Total Fish and Shellfish	**2,865,291**	**2,162,091**	**1,615,035**	**1,590,532**	**1,129,191**	**1,250,514**	**1,819,227**	**1,423,091**	**2,208,133**	**4,751,938**	**5,031,781**	**3,055,351**
Cured Fish:												
Herring, salted	2,620	3,895	1,725	2,195	1,345	3,760	1,850	2,000	1,850	3,800	3,225	3,825
Salmon, mild cured	12,918	11,272	10,424	8,812	7,743	....	6,059	6,059	6,029	6,029	4,804	8,788
Other, salted	2,850	15,975	2,625	2,540	2,515	1,875	2,225	1,985	15,045	21,700	20,270	1,325
Smoked Fish	2,360	5,468	4,375	2,776	4,823	2,996	2,165	2,100	1,775	5,570	5,211	5,501
Total Cured Fish	**20,748**	**36,610**	**19,149**	**16,323**	**16,426**	**8,631**	**12,299**	**12,144**	**24,699**	**37,099**	**33,510**	**19,439**

OREGON OTTER TRAWL LANDINGS

Year	Sole				Flounders	"Turbot"	"Cod" Miscel.	Lingcod	Rockfish	Dogfish	**Total**
	Petrale	English	Dover	Other							
1949..	1,346,760	953,936	2,766,382	288,367	196,352	1,347,642	4,714	631,424	2,570,603	503,614	**10,609,794***
1948..	2,605,460	3,266,422	2,802,181	272,878	1,428,660	1,219,208	29,083	798,952	3,890,003	338,739	**16,651,586**
1947..	1,443,936	1,883,438	2,031,905	139,791	667,347	723,497	30,194	569,226	4,637,594	92,344	**11,688,763**
1946..	2,984,092	3,950,609	3,197,988	132,136	1,279,839	297,708	260,574	1,150,803	10,671,012	31,310	**23,956,071**
1945..	1,574,143	1,096,601	2,704,216	238,507	1,024,288	168,811	412,731	1,015,215	17,365,866	40,554	**25,640,932**
1944..	2,019,148	1,057,701	1,593,469	254,400	877,048	700,147	594,810	1,208,051	11,266,874	398,836	**19,970,484**
1943..	3,805,094	898,639	6,431,666	2,239,125	858,051	2,831,013	32,731	934,878	6,762,494	1,601,368	**26,395,059**
1942..	3,745,236	227,783	2,308,308	1,671,162	443,840	71,137	47,255	989,142	1,728,299	1,086,242	**12,318,404**

* January through September.

Yearly Landings of Food Fish by the Otter Trawl Fleet at Seattle

Years	Sole and Flounders				Halibut	True Cod	Lingcod	Sablefish	Rockfish	Miscellaneous	**Total**
	English Sole	Petrale Sole	Other Sole, Flounders, Etc.	**Total**							
1942........	6,464,323	535,981	696,129	**7,696,433**	200,726	547,422	2,698,605	280,232	1,049,269	2,894	**12,475,581**
1943........	1,573,683	5,128,222	3,238,493	**9,940,398**	371,044	587,816	4,141,374	708,607	3,279,122	26,839	**19,055,200**
1944........	793,910	4,395,513	174,242	**5,363,665**	....	370,696	3,770,160	949,742	4,356,659	23,085	**14,834,280**
1945........	805,134	4,701,704	436,653	**5,943,591**	....	1,697,462	3,319,058	231,367	12,940,910	....	**24,132,388**
1946........	1,925,867	3,513,573	120,669	**5,560,109**	....	1,733,868	1,976,631	514,852	6,104,157	21,626	**15,911,243**
1947........	1,429,125	2,636,464	382,815	**4,448,404**	....	975,852	1,628,928	385,639	3,197,306	50,176	**10,686,315**
1948........	2,879,316	3,724,386	691,999	**7,295,701**	....	2,185,854	2,537,301	223,651	6,416,604	240,909	**18,900,020**
1949........	2,593,311	2,957,471	109,111	**5,659,893**	....	1,882,617	1,643,079	242,944	8,026,752	2,604	**17,457,889**

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MILD CURE

Despite shifting production patterns, Pacific mild cured salmon packers came up in 1949 with a pack approximating closely that of the year before. Alaska and Puget Sound outputs declined, but British Columbia and California more than made up the gains.

Rise of the use of large frozen salmon for smoking in the United States is having an effect on the mild cure business—and the tendency is increasing.

Predictions of shortage in mild cured salmon production — heard consistently through the 1949 producing season—proved sound when the year's output of 8,586 tierces is compared with past averages.

However, the 1949 pack exceeded by 130 tierces that of 1948, and was of a size and character which the trade believed would move into consumption promptly and at favorable prices. Certainly the supply of mild cure in the past couple of years has been distinctly limited—by continuing high prices made a limited supply essential to consumption without collapse.

Alaska Yield Declines

Alaska's pack of 4,449 tierces was the smallest since 1943 and 1944, and prior to that time no smaller pack had been put up since 1931.

1949—MILD CURED SALMON—1949

Company	Location	Tierces 825-lbs. Net
ALASKA—		
Atlantic & Pacific Packing Co.	Ketchikan	120
	Juneau	150
	Sitka	(a)353
Booth Fisheries Corporation	Pelican	160
Halibut Producers Cooperative	Pelican	6
McCallum-Legaz Fish Co.	Sitka	226
New England Fish Co.	Ketchikan	61
Northern Commercial Co.	Yukon River	104
Oxenberg Bros.	Ketchikan	168
	Petersburg	232
	Wrangell	50
	Juneau	8
Philips, E. C.	Ketchikan	38
Polar Packing Co.	Ketchikan	145
Raatikanen, Co.	Pelican	32
Rupert Fish Co.	Ketchikan	287
Seaboard Packing Co.	S. E. Alaska	650
San Juan	Ketchikan	33
	Juneau	59
Sebastian-Stuart Fish Co.	Juneau	143
	Pelican	325
	Wrangell	12
Stikine Fish Co.	Wrangell	65
Union Trade & Packing Co.	Kalinin Bay	(b)216
Vita Food Products Co.	Sitka	(c)235
	Ketchikan	39
	Petersburg	62
Whiz Fish Products Co.	Ketchikan	90
	Pelican	380
Total Alaska		**4,449**
BRITISH COLUMBIA		
British Columbia Packers, Ltd.	All Stations	524
Canadian Fishing Co., The,	All Stations	25
Fishermen's Cooperative Fed.	Vancouver	149
Prince Rupert Fishermen's Cooperative Association	Prince Rupert	479
Total British Columbia		**1,177**
PUGET SOUND		
Booth Fisheries Corp.	Seattle	40
Chase Seafood Co.	Everett	2*
Eardley Fish & Fillet Co.	Seattle	601
McCallum-Legaz Fish Co.	Seattle	63
New England Fish Co.	Seattle and Everett	19
Oxenberg Bros.	Seattle	449
San Juan Fishing & Packing Co.	Seattle	383
Sebastian-Stuart Fish Co.	Seattle	62
Washington Fish & Oyster Co.	Seattle	71
Whiz Fish Products Co.	Seattle	280
Miscellaneous	Seattle	79
Total Puget Sound		**2,049**
COLUMBIA RIVER		
New England Fish Co.	Astoria and Kalama	27
Oxenberg Bros.	Astoria	59
Total Columbia River		**86**
CALIFORNIA		
Seaboard Packing Co.	All points	175
United Fish Co.	Fort Bragg	240
Miscellaneous	All points	410
Total California		**825**
TOTAL PACIFIC COAST		**8,586**

NOTE—Above table does not include mild-cured Falls, of which about 125 tierces were cured on Puget Sound.
(a) Includes 4 tierces Silvers. (b) Includes 18 tierces Silvers. (c) Includes 5 tierces Silvers.

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ONLY THE AKERVICK ALL PURPOSE WINCH CAN HANDLE ALL THE GEAR YOU WANT TO RUN!

Each Reel Will Hold 1200 Fathoms of 5/64″ Wire Complete With Line Stops.

Reels Can Be Changed Quickly and Simply.

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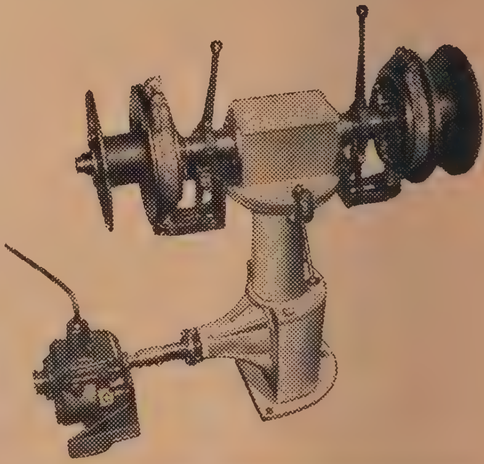
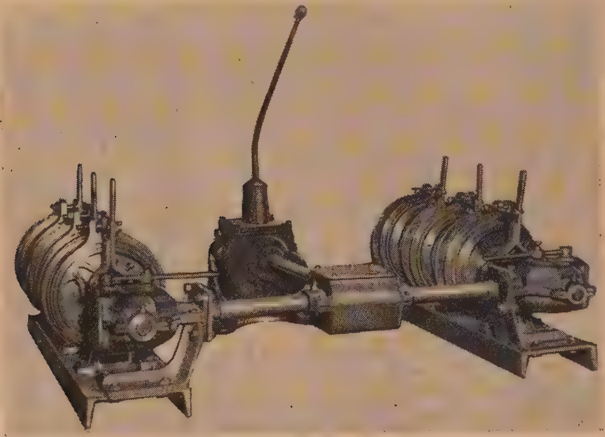
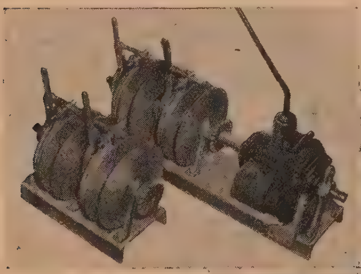
Easy to Install. Positive Controls on Each Reel.

We have developed an All Purpose Winch that will handle your gear without difficulty. With removable reels you can reel and store unlimited amounts of wire line. Each reel with wire will weigh less than 100 pounds, can be taken off the machine and stored on deck or in the hold. The AKERVICK All Purpose Winch is light in weight, easy to install and does not require too large horsepower to drive it.

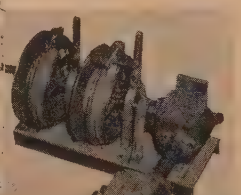


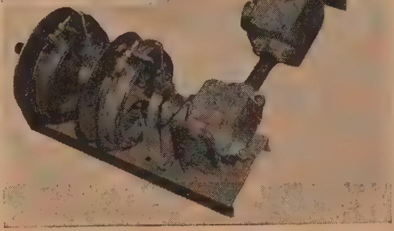


Above, in this six-spool AKERVICK Trolling Gurdy two angle boxes have been eliminated by running the shaft straight across, with reverse gears on the flat.

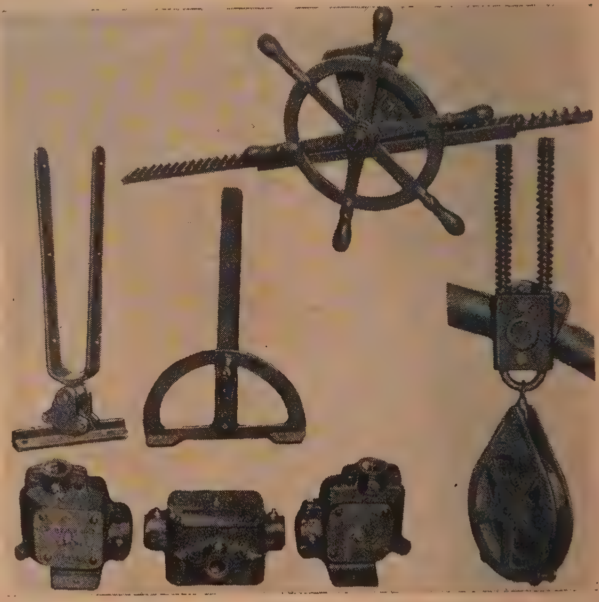


Below, four-spool AKERVICK Trolling Gurdy, with angle boxes and tee-gear box.





Above, four-spool AKERVICK Trolling Gurdy, showing transmission assembled to chain drive, which may be at either end of the gurdies.



Top, AKERVICK Trolling Cockpit Wheel. Right, AKERVICK Bow Line Shock Absorber on davit, with trolling block attached. Left, AKERVICK Bow Pole Swivel Mount, which permits pole to swing in any direction or position. Center, AKERVICK Throttle Control for attachment to boom over trolling cockpit for controlling engine speed. Bottom, left and right, AKERVICK Angle Gear Boxes, with AKERVICK Tee-Gear Box between.

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PACIFIC MILD CURED SALMON PACK – 1900 to 1949

(IN TIERCES OF 825 LBS. NET WEIGHT)

YEAR	Alaska	British Columbia	Puget Sound	Columbia River	Oregon Coast	California Coast	Sacramento River	Kamchatka	Recapitulation Kings	Recapitulation Silvers	Annual Totals	YEAR
1900......	....	....	....	1,275	....	....	950	....	Segregation of pack as to species not available for years prior to 1923	....	**2,225**	1900
1901......	67	....	600	3,000	....	....	3,100	....		....	**6,767**	1901
1902......	67	....	425	4,213	188	504	2,325	....		....	**7,722**	1902
1903......	8	....	824	6,725	....	354	3,600	....		....	**11,511**	1903
1904......	34	....	1,250	9,088	....	448	4,719	....		....	**15,539**	1904
1905......	189	1,175	3,000	9,805	415	310	2,979	....		....	**17,873**	1905
1906......	1,126	957	....	8,000	740	685	2,177	....		....	**13,685**	1906
1907......	1,657	1,993	2,060	6,070	860	722	4,102	....		....	**17,464**	1907
1908......	1,378	1,060	....	4,960	....	252	3,243	....		....	**10,893**	1908
1909......	2,292	1,560	2,109	5,540	664	991	5,111	....		....	**18,267**	1909
1910......	3,357	1,638	2,435	7,922	1,465	75	5,516	....		....	**22,408**	1910
1911......	3,164	2,006	2,745	8,185	1,377	770	2,011	....		....	**19,758**	1911
1912......	5,245	1,380	3,013	5,824	3,479	100	3,274	....		....	**22,315**	1912
1913......	7,440	2,125	3,631	5,746	2,681	550	4,789	....		....	**26,952**	1913
1914... ..	3,872	3,182	1,934	5,205	457	1,476	1,829	....		....	**17,955**	1914
1915......	2,966	1,119	2,235	4,078	333	945	1,630	....		....	**13,306**	1915
1916......	4,475	767	1,755	4,656	194	1,069	650	....		....	**13,566**	1916
1917......	2,955	429	1,063	1,886	....	300	1,508	....		....	**8,181**	1917
1918......	4,234	729	1,093	1,804	275	721	1,913	....		....	**9,869**	.... .1918
1919......	6,803	1,173	2,423	3,328	148	2,381	2,355	....		....	**18,611**	.... .1919
1920......	2,770	1,116	2,036	2,275	102	1,793	1,345	....		....	**11,437**	1920
1921......	3,966	1,076	4,517	3,051	160	1,251	812	....		....	**14,833**	1921
1922......	5,158	2,253	4,727	1,621	162	550	1,195	....		....	**15,666**	1922
1923.... .	4,075	1,819	5,799	1,769	176	1,229	606	....	15,129	344	**15,473**	 1923
1924......	6,069	2,969	6,409	2,320	286	2,624	1,291	....	21,476	492	**21,968**	1924
1925......	7,119	3,098	5,600	2,746	547	2,241	1,523	500	22,530	844	**23,374**	 1925
1926......	5,781	2,183	4,087	1,055	1,205	929	1,767	650	16,585	1,072	**17,657**	1926
1927......	8,982	2,689	5,160	951	918	927	1,125	854	19,390	2,216	**21,606**	1927
1928......	5,784	2,676	4,304	1,305	2,163	1,686	179	783	14,051	4,046	**18,880**	1928
1929......	5,477	3,016	4,311	1,969	1,787	1,160	155	1,083	15,749	3,209	**18,958**	1929
1930......	5,331	2,630	4,361	1,068	102	1,184	124	2,144	16,049	895	**16,944**	1930
1931......	4,123	1,083	5,700	1,251	372	1,027	164	712	13,862	570	**14,432**	1931
1932......	5,560	1,542	3,650	2,012	1,119	752	294	640	13,443	2,126	**15,569**	1932
1933......	4,852	3,097	3,527	2,431	660	1,392	37	340	15,295	1,041	**16,336**	1933
1934......	4,908	4,657	3,882	1,855	270	1,572	5	776	16,960	965	**17,925**	1934
1935......	**5,487**	**2,665**	**3,563**	**1,730**	**210**	**2,090**	**439**	**670**	**15,450**	**1,404**	**16,854**	**......1935**
1936......	**5,222**	**1,642**	**4,897**	**1,138**	**68**	**1,939**	**366**	**840**	**15,611**	**495**	**16,106**	**......1936**
1937......	6,373	4,055	2,775	604	....	1,026	49	778	15,552	108	**15,660**	1937
1938......	7,786	3,128	3,657	1,292	387	627	945	787	16,451	2,158	**18,609**	1938
1939......	**7,724**	**2,802**	**2,937**	**501**	**20**	**417**	**119**	**600**	**14,905**	**224**	**15,129**	**......1939**
1940......	**5,210**	**693**	**3,531**	**33**	....	**711**	**308**	**11**	**10,283**	**714**	**10,497**	**......1940**
1941......	**8,862**	**1,474**	**3,561**	**229**	....	**360**	**15**	....	**14,174**	**302**	**14,501**	**......1941**
1942......	**6,748**	**1,055**	**2,494**	**20**	....	....	....	....	**10,241**	**76**	**10,317**	**......1942**
1943......	**3,869**	**811**	**1,022**	**21**	....	166	....	....	5,278	611	**5,889**	1943
1944......	**3,518**	**2,019**	959	16	....	1,259	1,329	....	7,969	*1,050	**9,100**	1944
1945......	**7,763**	**1,209**	**1,790**	**159**	....	*1,065	1,570	....	10,843	*3,200	**13,556**	1945
1946......	**6,824**	**1,975**	**2,170**	**96**	....	....	†2,764	....	13,216	613	**13,829**	1946
1947......	**5,919**	**1,675**	**2,129**	**99**	....	†	919	....	10,631	110	**10.741**	1947
1948......	5,076	1,025	2,282	77	....	....	....	....	8,490	36	**8,456**	 1948
1949......	4,449	1,177	2,049	86	....	825	....	....	8,559	27	**8,586**	1949

NOTE:—Mild cured Falls not included. † Segregation as to districts not available.

* Estimated segregation. In 1945 the Silver category includes 200 tierces of Sockeyes

Pelican continued to be the point to watch in Southeast Alaska, and for the second successive year lead all other ports in Alaska in the volume of fish cured.

California Curing Resumed

After complete suspension of mild curing in California in 1948, the trade was resumed in 1949 and a pack of 825 tierces was put up in that state, all of it apparently from troll-caught salmon, although it is possible some may have been Sacramento River Chinooks.

Use of Frozen Salmon For Smoking Increases

A noteworthy shift in the mild cured salmon business appears to be developing from the growing use of frozen salmon of selected character in salmon smoking.

CALIFORNIA SALMON FISHERY

Year	Eureka Region Pounds	San Francisco Region Pounds	Monterey Region Pounds	Total Ocean Fishery Pounds	Sacramento Region Pounds	Grand Total Pounds	Year
1926....................	3,808,135	936,330	51,755	**4,796,220**	1,287,859	**6,084,079**	1926
1927....................	3,385,349	1,488,746	717,048	**5,591,143**	920,786	**6,511,929**	1927
1928....................	2,774,315	815,815	334,659	**3,924,789**	553,777	**4,478,566**	1928
1929....................	2,750,560	658,718	1,054,096	**4,463,374**	521,310	**4,984,684**	1929
1930....................	3,501,539	1,008,233	279,415	**4,789,187**	1,213,607	**6,002,794**	1930
1931....................	3,940,911	428,298	91,471	**4,460,680**	949,850	**5,410,530**	1931
1932....................	3,360,778	122,009	80,900	**3,563,687**	1,267,051	**4,830,738**	1932
1933....	3,390,482	157,485	569,907	**4,117,874**	448,967	**4,566,841**	1933
1934....................	2,893,725	818,812	286,230	**3,998,767**	401,707	**4,400,474**	1934
1935..	3,906,728	337,751	219,715	**4,464,193**	888,888	**5,353,081**	1935
1936....	3,479,716	447,548	145,194*	**4,072,458**	949,179	**5,021,637**	1936
1937...	3,834,568	1,208,414	892,005*	**5,934,987**	974,871	**6,909,858**	1937
1938....	1,853,715	117,549	199,657*	**2,170,921**	1,668,376	**3,839,297**	1938
1939..	1,673,151	434,626	125,498	**2,233,275**	496,933	**2,730,208**	1939
1940...	3,369,492	1,177,086	613,224	**5,159,802**	1,515,588	**6,675,390**	1940
1941...	2,413,368	375,766	156,850*	**2,945,984**	844,963	**3,790,947**	1941
1942....................	2,255,862	1,642,017	165,393*	**4,063,272**	2,552,944	**6,616,216**	1942
1943....	2,162,368	2,021,208	1,101,934	**5,285,510**	1,295,424	**6,580,934**	1943
1944..	3,791,094	2,646,714	583,013*	**7,020,821**	3,265,143	**10,285,964**	1944
1945....................	4,627,714	2,431,954	853,086*	**7,912,754**	5,467,960	**13,380,714**	1945
1946..	4,544,037	2,079,449	571,470*	**7,194,956**	6,463,245	**13,658,201**	1946
1947....................	5,868,577	1,485,657	749,870*	**8,104,104**	3,323,926	**11,428,030**	1947
1948.	4,019,122	1,543,187	250,790*	**5,813,099**	1,939,801	**7,753,016**	 1948
1949 Jan. to June only.	825,190	786,287	279,051*	**1,890,528**	382,598	**2,273,026**	.....6 months, 1949

* Includes a small amount of salmon landed in Santa Barbara Region.

TROLL SALMON LANDINGS IN OREGON

1949

Columbia River		Months	Coastal Ports		State Total		Oregon, Total, Both Species, Pounds
Chinook Pounds	Silver Pounds		Chinook Pounds	Silver Pounds	Chinook Pounds	Silver Pounds	
294		January			**294**		**294**
		February					
454		March	483	222	**937**	**222**	**1,159**
33,733		April	56,799		**90,532**		**90,532**
28,226		May	32,664		**60,790**		**60,790**
24,329	10,371	June	108,669	7,008	**132,998**	**17,379**	**150,377**
41,123	17,077	July	341,733	100,230	**382,856**	**117,307**	**500,163**
81,208	102,077	August	483,441	802,093	**564,649**	**904,170**	**1,468,819**
11,829	29,258	September	102,512	190,762	**114,341**	**220,020**	**334,361**
223,128	**158,783**	**Totals**	**1,138,435**	**1,100,315**	**1,347,397**	**1,259,098**	**2,606,495**

1948

3,317		January			**3,317**		**3,317**
946		February	209	276	**1,155**	**276**	**1,431**
2,412		March	970	252	**3,382**	**252**	**3,634**
65,523		April	2,863		**68,386**		**68,386**
200,177	44	May	31,498	48	**231,675**	**92**	**231,767**
61,977	133	June	19,743	152	**81,720**	**285**	**82,005**
36,669	145,920	July	203,591	500,084	**240,260**	**646,004**	**886,264**
119,613	126,166	August	532,816	279,290	**652,429**	**405,456**	**1,057,885**
40,222	112,213	September	180,789	107,058	**221,011**	**219,271**	**440,282**
1,566	24,065	October	12,059	38,324	**13,625**	**62,389**	**76,014**
196	357	November		1,579	**196**	**1,936**	**2,132**
170	117	December	75	5,494	**245**	**5,611**	**5,856**
532,788	**409,015**	**Totals**	**984,613**	**932,557**	**1,517,401**	**1,341,572**	**2,858,973**

1947

41	354	January	40	38	**81**	**392**	**473**
28,275		February	3,121	208	**31,396**	**208**	**31,604**
12,732	161	March	3,889	297	**16,621**	**458**	**17,079**
30,448	2,208	April	213,335	534	**243,783**	**2,742**	**246,525**
112,446	8,097	May	254,487	8,523	**366,933**	**16,620**	**383,553**
23,725	102,951	June	99,655	202,294	**123,380**	**305,245**	**428,625**
38,173	132,074	July	618,010	653,393	**656,183**	**785,467**	**1,441,650**
298,759	153,165	August	504,611	292,514	**803,370**	**445,679**	**1,249,049**
78,146	124,926	September	236,159	98,976	**314,305**	**223,902**	**538,207**
3,287	59,919	October	5,680	19,197	**8,967**	**79,116**	**88,083**
25	14,880	November	9,337	2,166	**9,362**	**17,046**	**26,408**
219		December	108		**327**		**327**
626,276	**598,735**	**Totals**	**1,948,432**	**1,278,140**	**2,574,708**	**1,876,875**	**4,451,583**

1946

	20	January	76		**76**	**20**	**96**
12,723		February	479	526	**13,202**	**526**	**13,728**
185,735		March	147	218	**185,882**	**218**	**186,100**
411,526		April	1,097		**412,623**		**412,623**
169,788	126	May	115,585	3,235	**285,373**	**3,361**	**288,734**
22,879	10,365	June	144,003	105,480	**166,882**	**115,845**	**282,727**
24,747	54,198	July	222,992	248,357	**247,739**	**302,555**	**550,294**
110,418	36,563	August	612,558	195,794	**722,976**	**232,357**	**955,333**
117,949	298,444	September	386,822	313,173	**504,771**	**611,617**	**1,116,388**
7,914	77,270	October	38,638	68,221	**46,552**	**145,491**	**192,043**
108	946	November	55	123	**163**	**1,069**	**1,232**
156	168	December		154	**156**	**322**	**478**
1,063,943	**478,100**	**Totals**	**1,522,452**	**935,281**	**2,586,395**	**1,413,381**	**3,999,776**

1945

		January	62	30	**62**	**30**	**92**
9,734		February	329	725	**10,063**	**725**	**10,788**
14,669		March	173	243	**14,842**	**243**	**15,085**
389,007	794	April	1,401		**390,408**	**794**	**391,202**
351,398	893	May	17,312	1,038	**368,710**	**1,931**	**370,641**
120,286	65,234	June	73,151	7,285	**193,437**	**72,519**	**265,956**
14,910	4,677	July	25,908	32,023	**40,818**	**36,700**	**77,518**
56,697	52,433	August	406,847	411,378	**463,544**	**463,811**	**927,355**
39,600	113,952	September	386,528	447,607	**426,128**	**561,559**	**987,687**
16,223	53,791	October	67,394	50,285	**83,617**	**104,076**	**187,693**
472	1,661	November	7,885	6,014	**8,357**	**7,675**	**16,032**
877		December	148	500	**1,025**	**500**	**1,525**
1,013,873	**293,435**	**Totals**	**987,138**	**957,128**	**2,001,011**	**1,250,563**	**3,251,574**

1946-1949 CALIFORNIA SALMON FISHERY BY MONTHS

Year and Month **1946**	Eureka Region Pounds	San Francisco Region Pounds	*Monterey Region Pounds	Total Ocean Fishery Pounds	Sacramento Region Pounds	Grand Total Pounds	Year and Month **1946**
January	....	....	....	....	9,634	9,634	January
February	....	....	....	....	96,271	96,271	February
March	....	....	....	....	208,076	208,076	March
April	161,749	434,740	214,796	811,285	666,511	1,477,796	April
May	771,141	342,003	190,677	1,303,821	1,187,111	2,490,932	May
June	558,904	170,692	78,553	808,149	132,114	940,263	June
July	1,424,532	520,109	78,651	2,023,292	....	2,023,292	July
August	1,159,570	403,052	8,793	1,571,415	487,022	2,058,437	August
September	438,301	208,853	....	647,154	3,673,636	4,320,790	September
October	29,840	....	....	29,840	....	29,840	October
November	....	....	....	....	1,166	1,166	November
December	....	....	....	....	1,704	1,704	December
Total	4,544,037	2,079,449	571,470*	7,194,956	6,463,245	13,658,201	**Total**
1947							**1947**
January	....	....	....	....	14,370	14,370	January
February	....	....	....	....	64,314	64,314	February
March	....	....	....	....	38,801	38,801	March
April	403,262	148,253	115,376	666,891	78,353	745,244	April
May	637,913	152,763	187,182	977,858	444,041	1,421,899	May
June	358,282	30,569	89,764	478,615	109,071	587,686	June
July	2,791,043	290,069	233,854	3,314,966	....	3,314,966	July
August	1,540,585	763,540	123,031	2,427,156	230,523	2,657,679	August
September	137,492	100,463	129	238,084	2,377,230	2,615,314	September
October	....	....	....	....	....	....	October
November	....	....	....	....	5,221	5,221	November
December	....	....	....	....	18,560	18,560	December
Total	5,868,577	1,485,657	749,336*	8,103,570	3,380,484	11,484,054	**Total**
1948							**1948**
January	....	....	....	....	29,888	29,888	January
February	....	....	....	....	84,261	84,261	February
March	....	....	....	....	68,388	68,388	March
April	43,879	113,315	24,641	181,835	181,353	363,188	April
May	698,072	275,922	17,840	991,834	254,730	1,246,564	May
June	938,672	312,733	50,276	1,301,681	58,390	1,360,071	June
July	942,738	506,284	86,668	1,535,690	....	1,535,690	July
August	1,226,590	158,575	52,836	1,438,001	70,144	1,508,145	August
September	137,655	175,635	18,529	331,819	995,531	1,327,350	September
October	....	....	....	....	....	....	October
November	....	....	....	....	32,639	32,639	November
December	....	....	....	....	48,739	48,739	December
Total	4,019,122	1,939,801	250,906*	5,813,215	1,939,801	7,753,016	**Total**
1949							**1949**
January	....	....	....	....	16,668	16,668	January
February	....	....	....	....	68,802	68,802	February
March	....	....	....	....	70,666	70,666	March
April	185,472	157,310	42,817	385,599	75,825	461,424	April
May	331,359	258,808	93,592	683,759	138,511	822,270	May
June	308,359	370,169	142,642	821,170	12,126	833,296	June
6-Mo. Total	825,190	786,287	279,051	1,890,528	382,598	2,273,026	**6-Mo. Total**

NOTE—1948 totals only have been corrected to conform to official data; month corrections not available.
*Includes small amounts of salmon landed in Santa Barbara Region.

While this practice is still a comparatively minor factor in the smoked salmon business, operators in that field report that over the past couple of years there has been a growing tendency to use for smoking fish which have been frozen rather than mild cured.

British smokers always have utilized fresh and frozen salmon in preference to mild cured. While it is true that there was at one time a market for some mild cured salmon in England, it was always limited in volume and did not represent the full use of Pacific salmon for smoking in that market.

The Los Angeles Smoking & Curing Co., whose "Lasco" brand of sliced smoked salmon packed in cans, has made this firm one of the largest salmon smokers in the west, has relied in large degree upon frozen salmon rather than mild cured for fish supply. It is believed that the eastern smokers have taken a tip from Los Angeles in embarking on this venture.

It is impossible at this time to give any figures as to the amount of salmon frozen for eventual smoking, or data covering the amount of mild cured salmon which has been displaced in the market by this development.

However, informed persons are of the opinion that salmon frozen for eventual smoking would be equivalent to more than 300 tierces — and perhaps a good deal more.

Competition of Albacore Affects Salmon Production

Once again in 1949 the lure of Albacore served to divert many boats from salmon fishing during what is generally the most productive part of the year for splitters in the Pacific Northwest fishery. Not a few fishing vessels were atracted from Alaskan waters as well.

While the price of Albacore in 1949 was much lower than in former years, the fact remained that a good many trollers took to jig fishing for tuna — and they did surprisingly well in some instances for the jig boats once more in 1949 seemed to have a distinct advantage over the bait boats. Much of the Albacore catch of that year was taken by salmon trollers fishing jigs instead of spoons and plugs.

HARD SALT SALMON PACK UP SHARPLY

Shipments of hard-salt salmon from Alaska to Seattle rose by just 300 bbls. in 1949 as compared with the previous year. Shipment figure show that Seattle received 482 full barrels of hard-salt salmon from Alaska in 1949, against 182 in 1948. In the earlier year, however, salt salmon receipts included 8 half-tierces in addition to the quantity given above. No shipments in half-tierces were received in 1949.

Salmon salting in former years constituted one of the most important branches of the Alaska fisheries, but in the past 25 years the trade has dwindled to insignificant proportions. The Hawaiian Islands still constitute a solid market for salt salmon.

Alaska shipments of salt sablefish to Seattle in 1949 aggregated 369 bbls., as against 394 bbls. in 1948.

ALASKA HERRING CURING SUSPENDED IN 1949

Alaska herring curing was entirely suspended in 1949. No reports of any curing were received from operators during that year, and the figures covering water shipments of fishery products from Alaska fail to disclose delivery of a single barrel of herring.

This was due of course to the complete shut-down of herring operations in the Prince William Sound and Kodiak Island districts, where most of the Scotch-cured herring is produced.

1949 Pacific Codfish Fleet Catch

Vessel	Owner	Dories	Pounds per Fish	Tons of Fish	Number of Fish
C. A. Thayer	J. E. Shields	14	2.72	299.2	220,270
Lynnanne	Trawler Lynnanne, Inc.	*	2.60	30.0	23,080
	Totals	14	†2.70	329.2	243,350
Previous Years:	1948	12	2.75	288.7	210,000
	1947	24	3.20	384.8	240,424
	1946	27	3.15	383.0	242,907
	1945	12	3.44	247.8	144,317
	1944	10	3.36	255.0	151,322
	1943	No operation			
	1942	12	3.55	315.47	177,447
	1941	46	3.57	1,145.00	641,925
	1940	47	3.54	1,576.00	890,155
	1939	52	3.55	1,537.00	863,263
	1938	52	3.18	1,560.00	982,365
	1937	78	3.06	1,859.01	1,238,801
	1936	94	3.07	2,229.74	1,496,700
	1935	94	3.09	2,210.70	1,428,329
	1934	100	3.35	2,544.50	1,520,255
	1933	93	3.18	2,485.50	1,559,221

Year	Fish	Year	Fish
1932	1,203,231	1919	3,341,000
1931	1,214,460	1918	3,357,384
1930	1,774,075	1917	3,880,633
1929	1,882,200	1916	3,891,986
1928	1,580,752	1915	3,798,071
1927	1,632,928	1914	3,920,802
1926	2,351,060	1913	2,425,357
1925	3,112,489	1912	2,326,000
1924	2,407,989	1911	2,793,000
1923	2,629,507	1910	1,969,000
1922	1,957,000	1909	2,460,000
1921	1,969,000	1908	3,245,000
1920	3,027,500	1907	3,012,000

* Operated trawl gear. † Average.

Pacific codfishing kept to scanty limits in 1949 with only one schooner and one trawler active—and the latter only on a side-line basis.

Capt. J. E. Shields continued as the kingpin in the ancient game, sending his schooner *C. A. Thayer* into the Bering Sea once more. She found favorable fishing and came home early with all her salt wet and a capacity fare.

Trawler *Lynnanne*, Inc., again sent the vessel of that name into Bering Sea on a two-fold mission, codfish and King crabs. The vessel had better luck than in her first venture in 1948, when mishaps cost her most of the season, and she came home with a modest load of salt codfish and fair pack of frozen crab meat.

The average size of the fish taken from Bering Sea in 1949 was again under three pounds, repeating the small average size of the deliveries from 1948 fishing.

Bering Sea Exploration Program is Continuing

Interest in the economic aspects of trawling Pacific codfish, in place of the time-honored dory-fishing method, continued in 1949, and the *Lynnanne* took her fish by that method. However, the length of run to Bering Sea and the problems of storing a trip for the period, have imposed restrictive influence on the employment of this fishing method.

In 1949 the crab trawler *Deep Sea*, under mid-summer charter to the U. S. Fish and Wildlife Service, fished her way north from the Aleutians to the vicinity of Nome, worked Norton Sound, and then fished south along the mainland coast.

While some crabs were taken, and considerable quantities of fish, it was notable that no considerable catches of codfish were made except in the southern and eastern part of Bering Sea.

As the vessel worked north from the Aleutians and offshore from the mainland the catch of codfish—and of crabs as well—decline sharply.

Annual Oregon Troll Salmon Landings 1942 to 1949

Columbia River		Years	Coastal Ports		State Total		Oregon Total, Both Pounds
Chinook Pounds	Silver Pounds		Chinook Pounds	Silver Pounds	Chinook Pounds	Silver Pounds	
323,769	100,843	1942	320,766	926,936	644,535	1,027,779	**1,672,314**
157,814	125,618	1943	247,349	534,813	405,163	660,431	**1,065,594**
457,721	286,637	1944	815,254	1,184,605	1,272,975	1,471,242	**2,744,217**
1,012,524	231,774	1945	979,105	950,614	1,991,629	1,182,388	**3,174,017**
1,063,943	478,100	1946	1,522,452	935,281	2,586,395	1,413,381	**3,999,776**
626,276	598,735	1947	1,948,432	1,278,140	2,574,708	1,876,875	**4,451,583**
532,788	409,015	1948	984,613	932,557	1,517,401	1,341,572	**2,858,973**
223,128	158,783	*1949	1,138,435	1,100,315	1,347,397	1,259,098	**2,606,495**

* Data for first nine months only.

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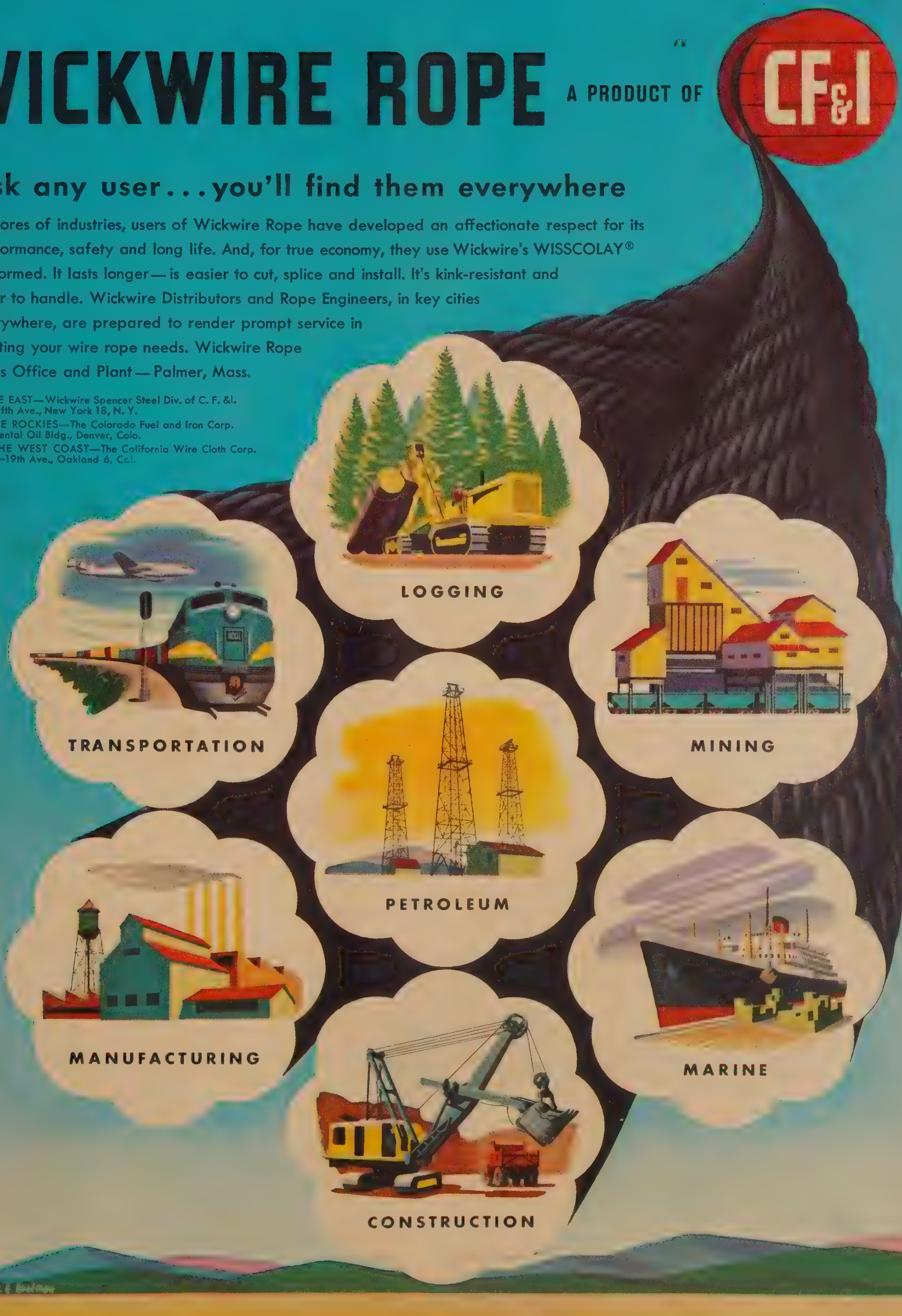

OREGON TRAWL FISH LANDINGS

1949	**January**	**February**	**March**	**April**	**May**	**June**	**July**	**August**	**September**	**October**	**November**	**December**	**Total**
	Pounds	Pounds	Pounds	Pounds	Pounds	Pounds	Pounds	Pounds	Pounds	Pounds	Pounds	Pounds	**9 Months**
SOLE—													
Petrale	68,056	8,735	106,556	262,672	70,819	145,579	270,596	228,038	185,709	......	......	......	1,346,760
Fringe	2,729	4,200	235	59	......	......	......	......	......	......	......	......	7,223
English	135,052	12,757	63,947	94,627	53,948	84,471	103,416	247,266	158,452	......	......	......	953,936
Dover	......	......	7,419	590	65,419	161,483	574,265	1,093,873	863,333	......	......	......	2,766,382
Other	7,200	......	13,917	11,477	8,973	29,263	156,572	45,730	8,012	......	......	......	281,144
"Turbot"	382	......	1,455	4,281	......	....	144,684	747,145	449,695	......	......	......	1,347,642
Total Sole	**213,419**	**25,692**	**193,529**	**373,706**	**199,159**	**420,796**	**1,249,533**	**2,362,052**	**1,665,201**				**6,703,087**
Flounders	16,139	12,567	12,880	10,760	68,685	36,105	7,445	2,567	29,204	......	......	......	196,352
Cod' — Miscellaneous	550	......	103	93	1,424	2,108	206	......	230	......	......	......	4,714
Lingcod	92,713	15,775	88,349	96,236	54,625	59,926	65,472	105,160	53,168	......	......	......	63,424
Rockfish	784,275	47,680	370,797	421,761	171,643	226,780	220,899	165,508	161,260	......	......	......	2,570,603
Dogfish	......	......	......	216,425	......	171,692	115,497	......	......	......	......	......	503,614
Dogfish	49,948	38,280	......										
Total Fish	**1,107,096**	**101,714**	**665,658**	**1,118,981**	**495,536**	**917,407**	**1,659,052**	**2,635,287**	**1,909,063**				**10,609,794**
LIVERS—													
Dogfish	49,261	3,400	52,506	179,003	36,279	1,966	349	1,512	136	......	......	......	324,412
Miscellaneous	11,296	8,538	4,448	4,943	3,866	7,841	7,121	7,545	7,408	......	......	......	63,006

1948	**January**	**February**	**March**	**April**	**May**	**June**	**July**	**August**	**September**	**October**	**November**	**December**	**Total**
	Pounds	Pounds	Pounds	Pounds	Pounds	Pounds	Pounds	Pounds	Pounds	Pounds	Pounds	Pounds	**1948**
SOLE—													
Petrale	61,266	13,007	58,119	208,485	400,229	629,496	455,720	546,884	80,230	105,951	28,277	17,796	2,605,460
Fringe	41,443	2,246	6,449	685	5,902	22,724	......	3,296	6,129	12,336	9,908	835	111,953
English	177,039	64,120	74,629	160,412	210,816	1,023,044	694,510	417,440	220,779	156,696	20,285	46,652	3,266,422
Dover	......	......	......	186	161,559	338,067	1,137,777	453,847	392,665	314,693	3,387	......	2,802,181
Other	......	114	96	2,128	25,432	36,115	82	27,994	39,267	23,251	1,465	4,981	160,925
"Turbot"	4,403	398	72,648	22,983	321,879	136,590	198,010	173,681	146,185	142,431	......	......	1,219,208
Total Sole	**284,151**	**79,885**	**211,941**	**394,879**	**1,125,817**	**2,186,036**	**2,486,099**	**1,623,142**	**885,255**	**755,358**	**63,322**	**70,264**	**10,166,149**
Flounders	229,488	44,541	11,448	46,758	308,838	75,628	184,534	185,103	158,532	114,002	17,759	52,029	1,428,660
Cod—Miscellaneous	112	699	223	1,507	3,965	14,214	4,011	2,256	692	607	469	328	29,083
Lingcod	52,184	16,420	44,370	105,427	165,727	118,701	58,974	89,683	48,748	51,998	22,432	23,888	798,952
Rockfish	412,023	216,917	496,258	885,757	568,583	186,716	212,018	221,780	136,134	265,241	121,357	167,219	3,890,003
Dogfish	49,948	38,280	......	66,494	16,000	......	......	16,000	118,000	17	34,000	......	338,739
Total Fish	**1,028,306**	**396,742**	**764,240**	**1,500,822**	**2,188,930**	**2,581,295**	**2,945,636**	**2,137,964**	**1,347,361**	**1,187,223**	**259,339**	**313,728**	**16,651,586**
LIVERS—													
Dogfish	23,121	14,171	35,439	265,874	45,791	9,836	9,083	7,948	14,896	35,472	80,313	16,864	558,808
Miscellaneous	8,729	4,569	11,137	5,296	2,871	4,123	24,538	46,616	20,202	14,726	12,193	8,000	163,000

1947	**January**	**February**	**March**	**April**	**May**	**June**	**July**	**August**	**September**	**October**	**November**	**December**	**Total**
	Pounds	Pounds	Pounds	Pounds	Pounds	Pounds	Pounds	Pounds	Pounds	Pounds	Pounds	Pounds	**1947**
SOLE—													
Petrale	29,778	35,042	78,952	144,462	297,964	87,079	504,805	58,765	99,034	24,724	52,601	30,730	1,443,936
English	89,793	74,740	91,760	227,694	218,706	125,896	325,077	285,446	221,960	28,275	122,864	71,227	1,883,438
Dover	......	......	......	3,069	40,932	429,687	758,741	229,271	412,256	149,102	8,847	......	2,031,905
Other Sole	15,344	640	4,894	3,801	4,356	12,972	1,650	12,740	41,255	11,301	26,937	3,901	139,791
Total Sole	**134,915**	**110,422**	**175,606**	**379,026**	**561,958**	**655,634**	**1,590,273**	**586,222**	**774,505**	**213,402**	**211,249**	**105,858**	**5,499,070**
Flounders	8,126	77,033	22,183	86,781	110,283	29,365	5,336	66,855	105,417	30,760	75,933	49,275	667,347
"Turbot"	......	......	3,911	27,526	238,191	30,598	246,835	70,099	71,949	17,435	15,989	964	723,497
"Cod" Miscellaneous	26	830	9,190	858	7,780	728	3,194	3,817	2,242	162	1,156	211	30,194
Lingcod	26,245	39,040	62,577	74,236	66,700	31,438	88,366	38,034	85,970	5,673	30,397	20,550	569,226
Rockfish	454,418	1,076,820	306,497	842,619	641,913	435,838	237,234	57,732	98,332	41,058	286,642	158,491	4,637,594
Dogfish	......	2,994	......	......	......	33,010	7,335	......	......	......	49,005	......	92,344
Total Fish	**623,730**	**1,307,139**	**579,964**	**1,411,046**	**1,626,825**	**1,216,611**	**2,178,573**	**822,759**	**1,138,415**	**95,088**	**459,122**	**229,491**	**11,688,763**
LIVERS—													
Dogfish	55,336	13,653	37,819	27,900	5,541	8,826	7,885	2,870	19,017	16,504	35,277	108,198	338,826
Miscellaneous	12,564	15,116	6,362	2,436	2,067	2,451	5,385	10,963	12,647	15,925	13,860	27,545	127,321

HALIBUT

First check—a slight one—in the continuing shrinkage of the length of Pacific halibut fishing seasons was recorded in 1949, largely as result of violent weather which beset the fleet during the first trip of the season and delayed landings by some days.

Regulated by quota set by an international commission, the catch varied but little from previous years.

The fleet wrestled with the problem of sound means by which the season might be lengthened.

Leveling-off was evident in most aspects of North Pacific halibut in 1949.

Total volume held close to that of the previous year—as is to be expected in a fishery whose take is limited by quota — and there were no sharp readjustments in the pattern as to where, when and by whom the fish were taken.

The pace of the fishery slowed somewhat and the ever-shortening span of the season failed to shorten, although this was doubtless due more to the violent weather which marked to first trip than to any other factor.

Perhaps most significant of all the levelings-off was one which does not appear in the statistical tables, but shows up in the graph which gives the catch per unit of effort. Here the rise reversed slightly, displaying a trend which officials of the International Fisheries Commission's staff have been forecasting for some time.

"Split-Season" Is Subject Of Heated Controversies

For some time the staff of the commission has maintained that the shortening of the halibut fishing season, particularly in Area 2, was producing a condition which was inimical to proper conservation and fullest use of the halibut stock.

This position was supported by the contention that the fishery concentrated in the month of May took an unduly heavy proportion of the halibut stock gathered on the banks at that season of the year; and at the same time failed to take an entirely legitimate toll from those groups of fish which tended to come onto the

Pacific Halibut Catch by Areas and Nationalities--1932 to 1949

YEAR	AREA 1	AREA 2†			AREA 3			TOTAL AMERICAN	TOTAL CANADIAN	Grand Total	YEAR
	AMERICAN	AMERICAN	CANADIAN	**Total**	AMERICAN	CANADIAN	**Total**				
	Pounds	Pounds	Pounds	**Pounds**	Pounds	Pounds	**Pounds**	Pounds	Pounds	**Pounds**	
1932	902,271	16,026,631	5,960,640	**21,987,271**	21,146,037	451,761	**21,597,798**	38,074,939	6,412,401	**44,487,340**	1932
1933	722,254	14,880,259	7,649,400	**22,529,659**	22,887,941	637,072	**23,525,013**	38,490,454	8,286,472	**46,776,926**	1933
1934	1,541,258	13,360,103	9,004,714	**22,364,817**	22,829,989	726,658	**23,556,648**	37,731,350	9,731,372	**47,462,722**	1934
1935	*1,489,294	13,112,709	8,954,740	**22,067,449**	22,532,977	1,251,314	**23,784,291**	37,134,980	10,206,054	**47,341,034**	1935
1936	708,301	13,865,731	8,696,865	**22,562,596**	23,717,665	1,887,788	**25,605,453**	38,291,697	10,584,653	**48,876,350**	1936
1937	709,752	13,445,575	9,852,348	**23,297,923**	23,551,917	1,912,966	**25,464,883**	37,707,244	11,765,314	**49,472,558**	1937
1938	706,316	13,737,819	9,571,461	**23,309,280**	22,820,005	2,623,208	**25,443,213**	37,264,140	12,194,669	**49,458,809**	1938
1939	1,072,675	13,466,002	10,913,035	**24,379,037**	22,761,120	2,552,125	**25,313,245**	37,299,797	13,465,160	**50,764,957**	1939
1940	779,036	14,395,547	11,101,558	**25,497,105**	25,396,243	1,582,314	**26,978,557**	40.570,826	12,683,872	**53,254,698**	1940
1941	332,259	13,332,247	10,609,166	**23,941,413**	25,590,281	2,350,333	**27,940,614**	39,254,787	12,959,499	**52,214.286**	1941
1942	285,621	14,046,982	9,147,146	**23,194,128**	24,903,636	2,054,745	**26,958,381**	39,236,239	11,201,891	**50,438,130**	1942
1943	419,944	13,740,543	11,116,583	**24,857,126**	26,569,949	1,790,540	**28,360,489**	40,730 436	12,90 .123	**53,637.559**	1943
1944	318.689	14,957,704	11,149,714	**26,107,418**	24,782,581	2,190,459	**26,973,040**	40,058,974	13,340,173	**53,399,147**	1944
1945	529.000	13,230,000	11,750,000	**24,980.000**	25,605,000	3,551,000	**29,156,000**	39.364,000	15,301,000	**54,665,000**	1945
1946	605,000	14,068.000	14,451,000	**28,519,000**	27,067,000	4,058,000	**31,125,000**	41,740,000	18,509,000	**60,249,000**	1946
1947	406,000	10,387,000	17,175,000	**27,562,000**	20,869,000	7,081,000	**27,950,000**	31,662,000	24,256,000	**55,918,000**	1947
1948	283,000	13,273,000	14,203,000	**27,476,000**	23,276,000	4,453,000	**27,729,000**	36,832,000	18,656,000	**55,488,000**	1948
1949	437,000	12,784,000	13,531,000	**26,315,000**	23,492,000	5,135,000	**28,627,000**	36,713,000	18,666,000	**55,379,000**	1949

† Figures for Area 2 for 1937 and thereafter include halibut which were taken incidentally to cod fishing after the closure of Area 2, as allowed by regulations of the International Fisheries Commission for these years. The approximate amounts are: 278,000 lbs. in 1937; 280,000 in 1938; 372,943 lbs. in 1939; 304,155 lbs. in 1940; 510,204 lbs. in 1941; 55,895 lbs. in 1942; 856,360 lbs. in 1943; 844,596 lbs. in 1944; 920,000 lbs. in 1945; 1,184,000 lbs. in 1946; 392,997 lbs. in 1947; 898,246 lbs. in 1948; 950,767 lbs. in 1949

* This figure includes landings from Areas 1 and 4, as defined in the regulations for 1935. This amount should compare directly with the Area 1 catch of previous years, as it is not believed any fish were landed in 1935 from that portion of Area 4 which included Bering Sea.

NOTE.—1949 figures of the International Fisheries Commission are preliminary and subject to further correction.

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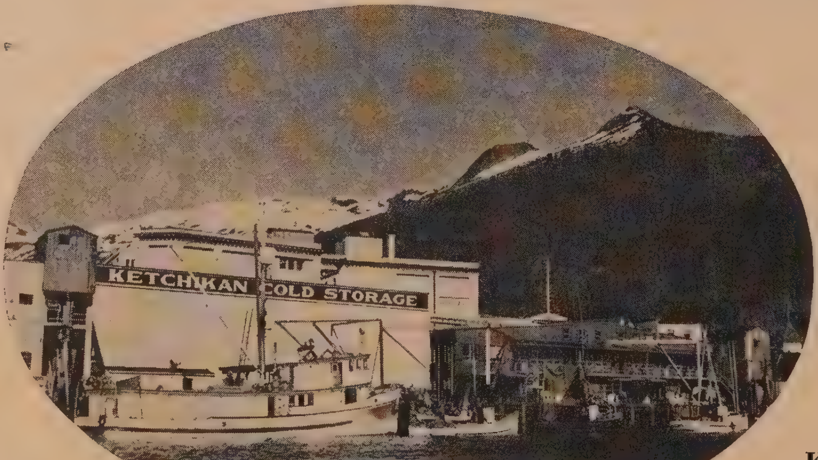

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PACIFIC HALIBUT CATCH SINCE 1914

Year	American Vessels					Canadian Vessels			Grand Total	Price at Seattle	Year
	Seattle *	Prince Rupert **	Alaska	Oregon and California ***	Total American	Prince Rupert, Butedale, Klemtu	Vancouver, New Westminster Vancouver I.	Total Canadian §			
	Pounds	Pounds	Pounds	Pounds	Pounds	Pounds	Pounds	Pounds	Pounds	Cents	
1914	41,825,575	1,877,000	5,175,993	....	48,878,568	8,742,100	4,991,500	13,733,600	**62,612,168**	4.7	1914
1915	33,133,313	11,323,500	5,561,577	....	50,018,390	8,444,715	4,791,000	13,235,715	**63,254,105**	6.7	1915
1916	20,259,446	13,810,895	6,961,628	....	41,031,969	6,710,500	5,258,000	11,968,500	**53,000,469**	9.8	1916
1917	22,884,434	14,216,030	6,792,138	....	43,892,602	5,839,030	3,686,000	9,525,030	**53,417,632**	14.6	1917
1918	16,455,564	10,790,500	6,076,500	....	33,322,564	4,338,000	1,552,000	5,890,000	**39,212,564**	18.3	1918
1919	16,968,639	13,000,700	7,366,991	....	37,336,330	6,120,000	1,957,000	8,077,000	**45,413,330**	16.5	1919
1920	19,692,915	14,676,400	8,035,000	....	42,404,315	7,190,000	2,010,600	9,200,600	**51,604,915**	17.2	1920
1921	17,127,783	19,531,400	8,784,029	....	45,443,212	8,906,000	4,149,400	13,055,400	**58,498,612**	13.5	1921
1922	14,602,780	17,248,900	4,772,038	....	36,623,718	8,510,000	3,559,500	12,069,500	**48,693,218**	6½-32	1922
1923	12,017,312	20,366,600	8,283,590	....	40,667,502	9,392,900	3,707,200	13,100,100	**53,767,602**	12-55	1923
1924	11,889,080	20,913,200	12,663,776	....	45,466,056	8,181,500	4,043,500	12,225,000	**57,691,056**	11¾-33¼	1924
1925	11,197,474	22,434,800	9,752,465	400,000	43,784,739	6,181,600	3,207,600	9,389,200	**53,169,939**	8-49	1925
1926	10,156,630	20,483,800	14,011,005	600,000	45,252,435	6,869,200	4,156,500	11,025,700	**56,278,135**	12¼-47	1926
1927	11,917,150	18,664,400	15,386,766	400,000	46,818,316	6,941,000	1,523,400	8,464,400	**55,282,716**	10⅝-55	1927
1928	13,788,775	20,389,700	9,623,700	760,000	44,562,175	8,349,500	1,541,500	9,891,000	**54,453,175**	7-49	1928
1929	12,359,170	20,599,200	12,882,426	1,103,888	46,890,984	8,045,100	1,747,800	9,792,900	**56,683,884**	10-71	1929
1930	12.671,470	16,997,800	11,389,756	930,000	41,989,832	7,006,600	1,475,200	8,481,800	**50,471,632**	6-30	1930
1931	15,087,672	10,573,300	9,638,150	953,000	36,252,122	6,202,400	1,424,800	7,627,200	**43,879,322**	7.26	1931
1932	22,000,296	10,633,800	4,568,829	1,050,000	38,253,025	4,227,700	2,023,200	6,250,900	**44,503,925**	4.54	1932
1933	22,263,992	8,757,300	6,781,451	679,066	38,461,454	5,649,200	2,630,700	8,300,255	**46,761,709**	6.51	1933
1934	20.718,328	8,591,983	7,132,059	1,288,980	37,731,350	7,946,499	1,784,873	9,731,372	**47,462,722**	7.45	1934
1935	22,388,941	6,927,014	6,538,114	1,280,911	37,134,980	7,636,694	2,563,276	10,206,054	**47,341,034**	8.27	1935
1936	22,726,642	6,204,645	8,654,364	706,646	38,291,697	8,111,472	2,468,936	10,584,653	**48,876,350**	8.76	1936
1937	21,351,684	7,017,857	8,646,993	690,710	37,707,244	9,032,623	2,711,562	11,765,314	**49,472,558**	9.09	1937
1938	20,995,966	7,324,178	8,220,752	704,734	37,264,140	8,617,890	3,384,569	12,194,669	**49,458,809**	8.35	1938
1939	20,070,259	9,319,026	6,897,208	1,013.304	37,299,797	9,904,372	3,466,362	13,465,162	**50,764,957**	8.69	1939
1940	18,863,872	11,210,740	9,481,893	1,014,321	40,570,826	9,323,133	3,355,516	12,683,872	**53,254,698**	10.30	1940
1941	19,095,973	10,036,640	8,998,580	1,123,594	39,254,787	8,708,902	4,173,967	12,959,499	**52,214,286**	11.82	1941
1942	14,865,306	13,430,294	10,169,162	771,477	39,236,239	5,997,895	5,203,996	11,201,891	**50,438,130**	16.95	1942
1943	13,278,341	12,309,595	14,096,356	1,046,144	40,730,436	6,281,348	6,487,010	12,907,123	**53,637,559**	22.40	1943
1944	11,881,680	5,444,672	21,853,111	879,511	40,058,974	8,458,974	4,823,502	13,340,173	**53,399,147**	16.87	1944
1945	12,651,000	4,571,000	21,049,000	1,093,000	39,364,000	11,606,000	3,503,000	15.301,000	**54,665,000**	16.84	1945
1946	13,932,000	4,384,000	22,502,000	928,000	41,740,000	15,117.000	2,919,000	18,509,000	**60,249,000**	21.31	1946
1947	5,816,000	2,585,000	22,422,000	841,000	31,664,000	17,868,000	6,117,000	24,255,000	**55,919,000**	24.96	1947
1948	9,941,000	2,479,000	23,790,000	621,000	36,831,000	13,665,000	4,813,000	18,657,000	**55,488,000**	20.70	1948
1949	10,006,000	4,205,000	21,836,000	666,000	36,713,000	13,734,000	4,262,000	18,666,000	**55,379,000**	19.8	1949

NOTE:—1949 figures of the International Fisheries Commission are preliminary and subject to further correction.

Up to 1921 the figures given are estimated averages for No. 1 halibut. From 1922 to 1930, inclusive, they are the extreme ranges of prices paid for No. 1 halibut. Beginning with 1931 they represent the official average price of all halibut landed at Seattle, as computed from the statistics of the U. S. Bureau of Fisheries.

*Includes the very small amount of fish landed at Neah Bay and elsewhere on Puget Sound.

**Includes the fish occasionally landed by American vessels at Butedale, Vancouver and elsewhere in Canada.

***Landings in Oregon and California not segregated prior to 1925.

§Totals include halibut landed by Canadian vessels in American ports. In 1938 such landings included 166,516 lbs. landed at Seattle and 25,694 lbs. landed in Alaska. In 1939 they included 79,533 lbs. landed at Seattle and 14,895 lbs. landed in Alaska. In 1940, they included 5,223 lbs. landed in Alaska. In 1941, the inclusions were 60,673 lbs. landed in Seattle and 15,957 lbs. in Alaska. In 1942, included 65,680 lbs. landed in Alaska. In 1943, included 44,199 lbs. in Alaska and 94,566 lbs. at Seattle. In 1944, included 59,211 lbs. landed in Alaska. In 1945 included 192,000 lbs. landed in Alaska. In 1946, included 473,000 lbs. landed in Alaska. In 1947 included 270,000 lbs. landed in State of Washington. In 1948 included 179,000 lbs. landed in Alaska. In 1949 included 42,000 lbs. landed in Seattle and 628,000 lbs. landed in Alaska.

grounds in concentrations at other seasons of the year. Evidence backing this position is drawn from tagging experiments and other of the commission's investigations.

At the same time, the fishermen have sought extension of the period of fishing because of several factors: (1) support of the conservation position; (2) belief that greater economic return could be secured from a given amount of fish taken over a longer period; (3) feeling that a longer fishing period would tend to discourage boats not regularly engaged in halibut fishing as a primary trade from entering the field for the one month of concentrated activity.

Proposals to lengthen the period of fishing by opening the season for a period of perhaps 10 days, followed by closure for twice that time, with a subsequent 10-day opening, touched off controversies which continued throughout 1949 and into 1950.

Larger Quotas Suggested If Fishing Is Extended

In the spring of 1949 the International Fisheries Commisison conducted some serious inquiry into public opinion on the matter of this "split season" program, which seemed to be the only method by which fishing could be extended under the commission's existing authority.

Although the "split" was vigorously supported in some quarters,

SIZE OF HALIBUT FLEET
(Includes Regular Halibut Boats Only)

Year	United States Fleet				Canadian Fleet				Combined Fleets			
	Area 2	Area 2	Area 3	Area 3	Area 2	Area 2	Area 3	Area 3	Area 2	Area 2	Area 3	Area 3
	Number of Boats	Number of Men	Number of Boats	Number of Mdn	Number of Boats	Number of Men	Number of Boats	Number of Men	Number of Boats	Number of Men	Number of Boats	Number of Men
1943............	247	1,037	107	942	162	767	3	24	409	1,804	110	966
1944............	278	1,056	84	753	278	831	4	34	485	1,887	88	767
1945............	316	1,253	97	837	175	867	3	26	491	2,120	100	863
1946............	373	1,373	116	921	187	952	5	41	560	2,325	121	962
1947............	350	1,302	119	887	215	1,168	5	40	565	2,470	124	927
1948............	379	1,449	139	1,020	194	1,065	5	39	573	2,514	144	1,119
1948............	403	1,496	139	1,095	249	1,221	5	39	652	2,717	144	1,134
1949............	374	1,452	149	1,134	225	1,153	5	41	599	2,605	154	1,175

NOTE:—1949 figures are preliminary only and subject to further correction.

1949—Halibut Arrivals at Alaska Ports—1949

Month	Ketchikan Pounds	Wrangell Pounds	Petersburg Pounds	Sitka Pounds	Juneau Pounds	Pelican Pounds	Miscellaneous S.E. Alaska Pounds	†Western Alaska Pounds	TOTAL Pounds
May	4,010,000	297,000	1,618,000	755,000	1,256,000	1,021,000	24,000	1,096,000	10,077,000
June	3,206,000	167,000	943,000	1,138,000	764,000	971,000	17,000	3,136,000	10,342,000
July	387,000	29,000	231,000	99,000	341,000	211,000	....	465,000	1,763,000
August	13,000	....	50,000	14,000	83,000	14,000	....	....	174,000
Sept.	11,000	3,000	38,000	6,000	25,000	2,000	....	1,000	86,000
Oct.	1,000	2,000	13,000	....	5,000	2,000	....	....	23,000
Nov.	....	....	....	....	....	....	....	....	....
TOTALS	**7,628,000**	**498,000**	**2,893,000**	**2,012,000**	**2,474,000**	**2,221,000**	**41,000**	**4,698,000**	**22,465,000**

Year	Previous Year*** Ketchikan	Wrangell	*Petersburg	Sitka	Juneau	Western Alaska	TOTAL
1948	7,700,000	716,000	2,548,000	2,990,000	5,273,000	4,742,000	23,969,000
1947	7,503,000	643,000	2,828,000	2,634,000	5,432,000**	3,389,000	22,429,000
1946	9,918,000	699,000	2,943,000	2,684,000	4,363,000**	2,279,000	22,886,000
1945	9,277,000	585,000	2,161,000	2,773,000	4,363,000**	2,221,000	20,887,000
1944	9,554,962	1,008,312	2,486,084	2,694,073	3,540,637	2,569,043	21,853,111
1943	7,450,730	727,157	1,936,825	1,691,697	2,289,947	....	14,096,356
1942	5,749,469	469,037	1,559,221	834,046	1,816,148	....	10,169,162
1941	3,367,567	375,135	1,463,801	2,173,697	1,616,928	....	8,998,580
1940	3,798,134	400,735	1,718,490	1,370,412	1,984,511	....	9,481,893
1939	2,263,927	279,660	1,460,190	931,557	2,001,999	....	6,897,208
1938	2,828,111	414,928	1,965,843	906,852	2,039,814	....	8,220,752
1937	3,642,996	590,834	1,352,807	893,602	1,832,533	....	8,646,993
1936	3,556,364	494,221	1,979,813	945,933	1,541,674	....	8,654,364
1935	3,752,488	112,060	474,672	667,811	1,341,864	....	6,538,114
1934	3,155,474	284,950	1,002,792	1,172,264	1,463,761	....	7,132,059

*Includes nearby miscellaneous ports.

**Includes Pelican City landings.

Previous Years—***Figures from 1945 to 1948 have been revised and now include landings by Canadian vessels at Alaskan ports. Prior to 1945 such landings did not exceed 5,000 lbs. annually. Since 1945 landings by Canadian vessels in Canada have been as follows: 1945, 192,000 lbs.; 1946, 491,000 lbs.; 1947, none; 1948, 179,000 lbs.; 1949, 628,000 lbs.

†Ports included under Western Alaska are: Port Williams, Cordova, Port San Juan, Seward and Sand Point.

there was vehement opposition and the commission decided to defer action until more thorough examination and discussion should be possible.

At hearings in the fall of 1949 the commission plainly indicated that it would be willing to increase somewhat the quota for Area 2 fishing if it should be possible by one means or another to extend the fishing over a longer period.

The commission contended that the existing quota is all that should be taken from the stocks exploited by the May fishery; but that a greater gross amount could be allowed soundly if a substantial portion of the catch was taken from stocks of fish on the grounds at other seasons of the year.

Halibut Treaty Revision Would Permit Extension

The International Fisheries Commission does not have authority under the Treaty of 1937, now effective, to regulate the *rate* of halibut fishing. Its authority extends over the *amount* of fish which may be taken, the *location* of fishing, and the *methods* by which such fishing may be pursued. Whether or not it actually has authority to open and close seasons to the extent that would be required under a "split-season" program is regarded as open to some question.

In 1949 preliminary draft for a revised treaty was prepared as a basis for discussion. Primary change proposed in the commission's powers would be to extend authority to permit the commission to regulate departures by individual vessels in such a way as to extend the fishing over that period which it might consider would contribute best to conservation of the stock, and at the same time to the economic benefit of the industry.

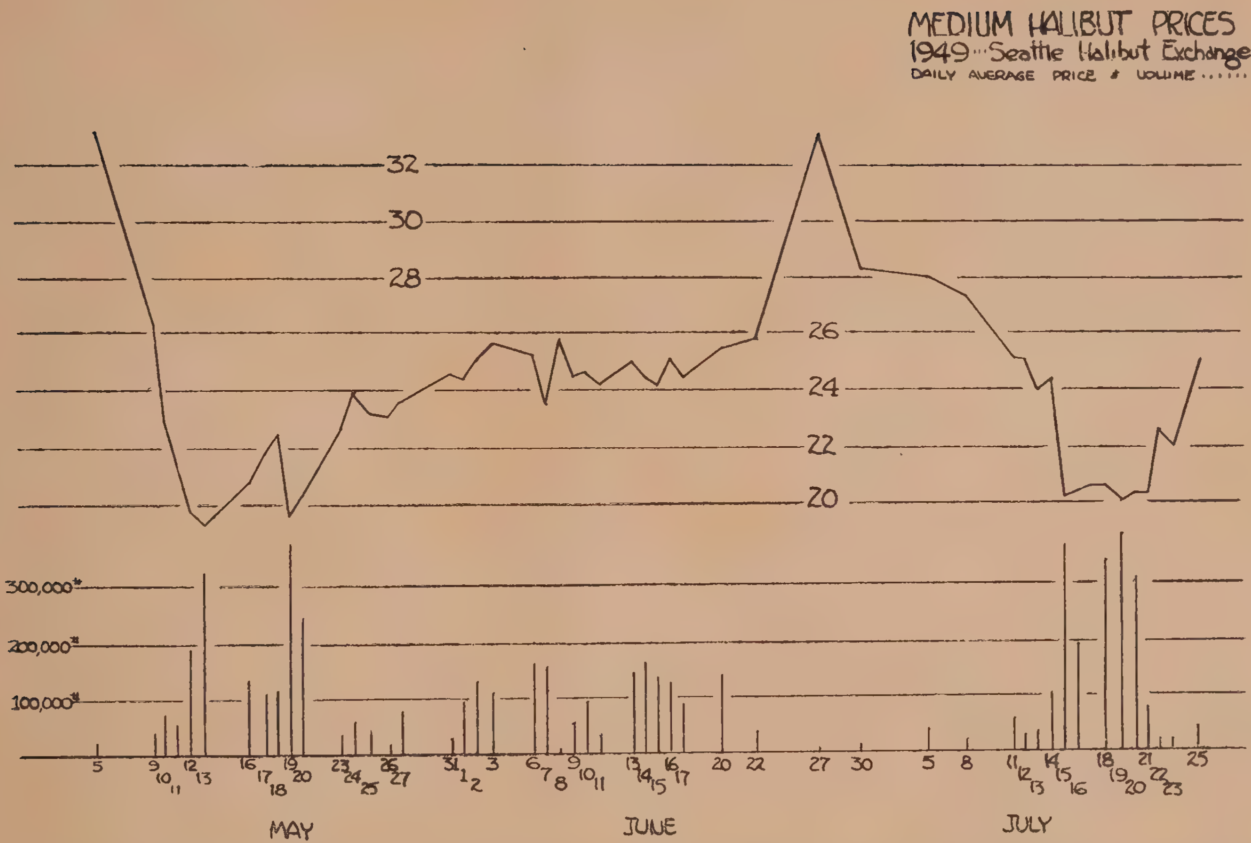
Pacific Halibut Catch—Areas 2 and 3 by Months

Month	Area 2 U. S.	Area 2 Canada	Area 2 Total	Area 3 U. S.	Area 3 Canada	Area 3 Total	Total U. S.	Total Canada	TOTAL
May	8,606,000	10,436,000	19,042,000	6,433,000	402,000	6,835,000	15,039,000	10,838,000	25,877,000
June	3,548,000	2,804,000	6,352,000	10,888,000	2,646,000	13,534,000	14,436,000	5,450,000	19,886,000
July	113,000	62,000	175,000	6,107,000	2,069,000	8,176,000	6,220,000	2,131,000	8,351,000
August	212,000	119,000	331,000	63,000	17,000	80,000	275,000	136,000	411,000
September	187,000	72,000	259,000	1,000	....	1,000	188,000	72,000	260,000
October	90,000	25,000	115,000	....	....	....	90,000	25,000	115,000
November	28,000	13,000	41,000	....	1,000	1,000	28,000	14,000	42,000
TOTALS	**12,784,000**	**13,531,000**	***26,315,000**	**23,492,000**	**5,135,000**	**28,627,000**	**36,276,000**	**18,666,000**	****54,942,000**

*This total includes 917,941 lbs. of halibut which were taken incidentally to cod fishing after the closure of Area 2, as allowed by the 1949 Regulations of the International Fisheries Commission; and similarly 33,826 lbs. from Area 3.

**This table does not include the partially estimated amount of 436,797 lbs. landed from Areas 1A and 1B.

Note:—1949 figures of the International Fisheries Commission are preliminary and subject to further correction.



The graph, drawn from day to day during the halibut marketing season by William Eardley, Jr., of the Eardley Fish & Fillet Co., gives a pretty picture of the operation of the law of Supply and Demand, showing clearly how price—represented by the curve plotted against horizontal lines for cents per pound—rises and falls counter to the rise and fall of landing volume—represented by the vertical lines below. Note particularly the big bulge in price which resulted from the period of scant landings in late June and early July, when the fleet was concentrating its landings in the north—and then how sharply the price fell as the fleet ran home with the final trip of the season, producing a week of very heavy landings.

Federal authority early in the discussions made it plain that no regulations adopted under this provision would be approved unless they were dictated entirely by biological considerations, and not at all because of economic effect.

1949 Halibut Market Firmer In Fact than in Forecasts

The weakening of commodity markets and decline in business generally which manifested itself at the end of 1948 and in the first two or three months of 1949 reacted quickly on the market for frozen halibut. Those freezers who had not sold-out by the first of 1949 took sharp loss on inventory as the market broke sharply.

Just prior to the opening of the 1949 halibut season predictions were widely heard that average prices would not exceed the ceiling prices under O.P.A.

These forecasts failed from the opening of the season. Short and slow first trips as result of very bad weather served to distribute landings and sustain prices. At the same time, trade trends showed market improvement and prices stiffened.

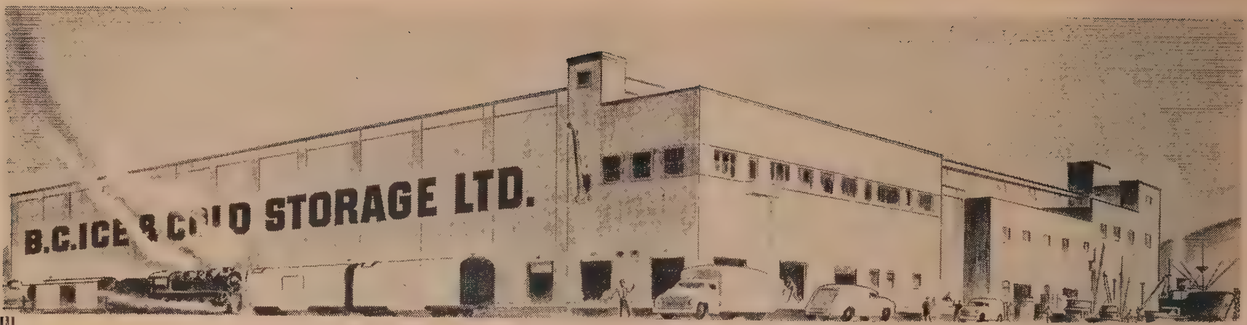
Result was that 1949 average prices on the Seattle market actually were 3c above O.P.A. ceilings, although nearly 1c below the average of 1948, and more than 5c on the average below the postwar peak average of 24.96c in 1947. (It should be noted that these are *Seattle* averages, and that the 1947 market at that port was extremely high, due to the Seattle fishermen's strike, which lasted through the Area 2 season.)

Seasons Not Quite So Short As in Previous Period

The halibut fishing period of 1949

Percentage Divisions of Catch Between Fleets

Year	CANADIAN Area 2	CANADIAN Area 3	CANADIAN All Areas	AMERICAN Area 2	AMERICAN Area 3	AMERICAN All Areas
1949	51.4	17.9	33.7	48.6	82.1	66.3
1948	51.7	18.0	33.6	48.3	82.0	66.4
1947	62.3	25.3	43.7	37.7	74.6	56.3
1946	50.7	13.0	30.7	49.3	87.0	69.3
1945	47.0	12.2	28.0	53.0	87.8	72.0
1944	42.7	8.2	25.0	57.3	91.8	75.0
1943	44.5	5.8	24.1	55.5	94.2	75.9
1942	39.0	7.7	22.2	61.0	92.3	77.8
1941	44.2	8.4	24.7	55.8	91.6	75.3
1940	43.5	5.9	23.8	56.5	94.1	76.2
1939	44.8	10.0	26.5	55.2	90.0	73.5
1938	41.3	10.4	24.7	58.7	89.6	75.3
1937	42.6	7.5	23.8	57.4	92.5	76.2
1936	38.8	7.0	21.7	61.2	93.0	78.3
1935	40.8	5.3	21.3	59.2	94.7	78.7
1934	40.2	3.0	20.5	59.8	97.0	79.5
1933	33.9	2.7	17.7	66.1	97.3	82.3
1932	27.1	2.0	14.4	72.9	98.0	85.6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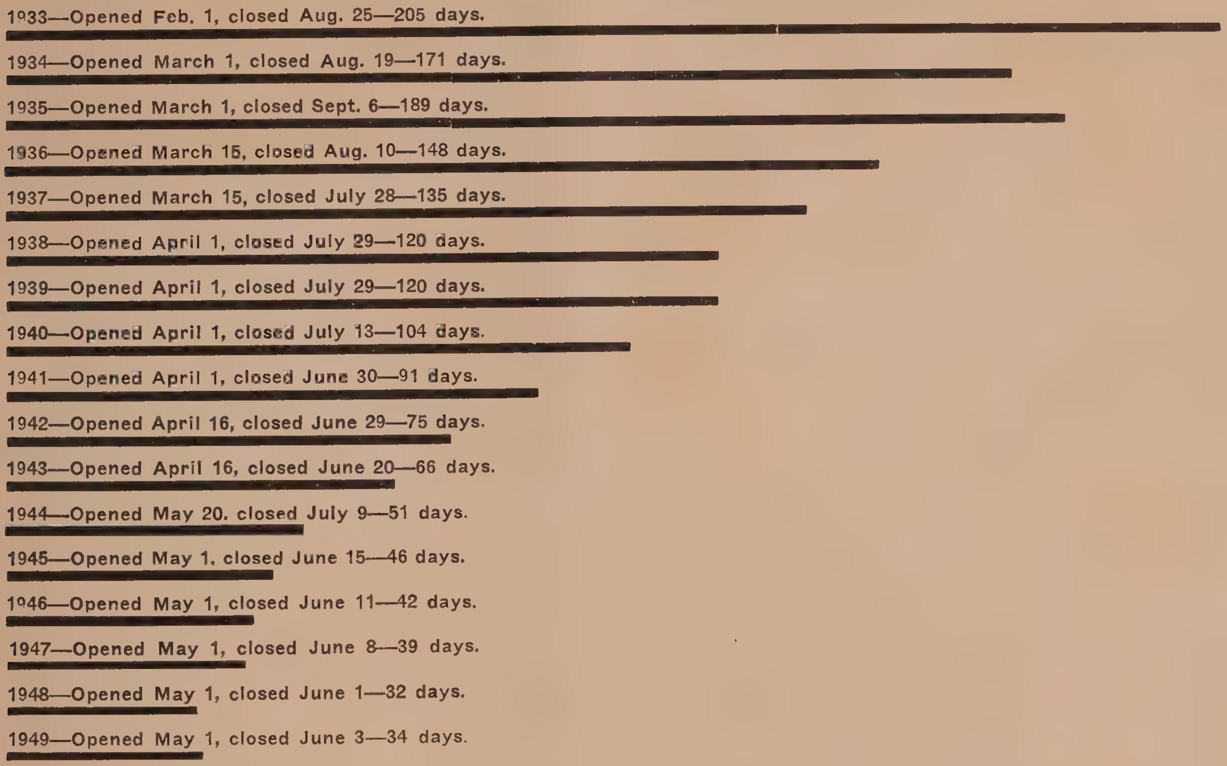
DECLINING LENGTH OF AREA 2 HALIBUT SEASON



was longer than the year before, but the margin was small and can be accounted for altogether by the stormy weather which prevailed at the start of the season. The weather during the first trip was violent in the extreme, and the first week of the season saw almost no landings at all.

The Area 2 season closed June 3 after 34 days of fishing, as compared with 32 days in 1948.

In Area 3 the season closed July 12 after 73 days of fishing, one day more than the 72 days allowed in 1948.

Halibut Landed Under Permit After Closure Of Area 2

Year	Pounds
1937	278,000
1938	280,000
1939	372,943
1940	304,155
1941	510,204
1942	55 895
1943	856,360
1944	844,956
1945	920,000
1946	1,184,000
1947	392,997
1948	898,246
1949	950,767

NOTE—Under regulations of the International Fisheries Commission, vessels fishing for species other than halibut after closure of Area 2, but before Nov. 15, may secure permits which authorize them to retain one pound of halibut for every seven pounds of other species, providing the halibut was taken in bona fide longline fishing operations for other species.

Chickens Swing into Market Favor Once More in 1949

As often happens in the fish market, the pendulum of demand, once started, tends to over-swing. In 1948 the trade showed a marked lack of interest in chickens. The demand was all for large mediums and small whales, fish which would steak and package to good effect and with a minimum of loss. Chickens, with their high rate of shrinkage in packaging, just were not in demand, and the boat that hailed a heavy proportion of small fish inevitably took a penalty.

Remembering this, in 1949, the fishermen avoided the chicken banks and laid their gear where they might expect big fish. The result was an under-supply of chickens, and after the Area 2 season closed chix came into strong demand. Even high prices could not save the situation, and the season closed with stocks of frozen chickens very short.

Alaska Taxation Program Hits at Halibut Fishermen

The 1949 Alaska legislature, levying taxes with a heavy hand, frankly sought to collect from halibut fishermen. It applied license fees of

Oregon and California Halibut Landings —1949

Month	California Pounds	Oregon Pounds
May	80,000	290,000
June	52,000	146,000
July	24,000	1,000
August	12,000	9,000
September	4,000	15,000
October	2,000	11,000
November	1,000	2,000
TOTALS	175,000	474,000

Note—1949 figures of the International Fisheries Commission are preliminary and subject to further correction.

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1949—Halibut Arrivals at British Columbia Ports—1949

Month	Prince Rupert Butedale, Klemtu	New Westminster Vancouver, Namu	District No. 3 and Victoria	Total Canadian Vessels	American Vessels at Prince Rupert	Grand Total
May	7,921,000	1,011,000	1,861,000	10,793,000	1,490,000	12,283,000
June	4,110,000	515,000	310,000	4,935,000	1,617,000	6,552,000
July	1,527,000	494,000	....	2,021,000	1,098,000	3,119,000
August	112,000	24,000	....	136,000	....	136,000
September	50,000	22,000	....	72,000	....	72,000
October	8,000	17,000	....	25,000	....	25,000
November	6,000	7,000	1,000	14,000	....	14,000
Totals	**13,734,000**	**2,090,000**	***2,172,000**	****17,996,000**	**4,205,000**	**22,201,000**
Previous Years						
1948	13,665,000	2,641,000	2,172,000	18,478,000	2,479,000	20,957,000
1947	17,868,000	4,298,000	1,819,000	23,985,000	2,585,000	26,570,000
1946	15,117,000	2,023,000	896,000	18,036,000**	4,378,000	22,413,000
1945	11,606,000	2,340,000	1,163,000	15,109,000**	4,571,000	19,680,000
1944	8,457,460	3,604,517	1,218,985	13,280,962**	5,444,672	18,725,634
1943	6,381,348	5,155,435	1,331,575	12,907,123	12,337,126	25,018,553
1942	5,910,928	4,035,866	1,104,459	11,201,891	13,415,795	24,467,048
1941	8,625,079	3,139,021	1,014,192	12,959,499	10,033,720	28,812,612
1940	9,310,667	1,999,314	1,002,401	12,683,872	11,210,740	25,632,122
1939	9,904,289	3,018,504	445,500	13,465,162	9,319,026	22,687,319
1938	8,619,526	2,794,557	586,619	12,194,669	7,324,178	19,343,390
1937	9,026,372	2,333,370	377,796	11,765,314	7,015,057	18,773,489
1936	8,113,365	2,054,167	399,200	10,584,653	6,205,377	16,772,209
1935	7,636,704	2,246,196	349,300	10,206,054	6,927,581	17,159,781
1934	7,946,499	1,513,273	271,600	9,731,372	8,591,983	18,323,355

*The figures for District No. 3 were obtained from the Canadian Government by the International Fisheries Commission, and amended by data from other sources.

**Total Canadian does not include landings in Alaska of 628,000 lbs. and of 42,000 lbs. in the State of Washington in 1949. In 1948 Canadians landed 179,000 lbs. in Alaska; and in 1947 they landed 270,000 lbs. in the State of Washington.

NOTE:—1949 figures of the International Fisheries Commission are preliminary and subject to further correction.

$5 on resident fishermen and $50 on non-residents, with the provision that anyone fishing, or carrying fish, in Alaskan waters was liable for the tax, regardless of where the fish may have been caught; and that the person buying the fish was responsible for seeing to it that any fishermen from whom he bought had proper licenses.

Attacked in the courts, this non-resident license fee was overthrown so far as it applied to persons fishing outside of territorial waters and merely bringing their fish into Alaska waters for sale.

Another tax laid on halibut from the high seas was the application of a tax of 1% of the price paid for any fish landed in the territory for shipment in fresh state, frozen or cured. This tax was designed primarily to apply to landings of halibut and troll salmon.

Steel Gear and Small Craft Refrigeration Are Noted

Among technical developments of 1949 in the halibut fishery were extended employment of stainless steel fishing gear, and the application of mechanical refrigeration to halibut fishing vessels.

Neither of these departures was initiated in 1949, but it remained for that season to give them definite impetus.

Stainless steel halibut gear, believed to have been used first a year or two before down the Oregon coast, came into wider use and in 1949 was employed by several Puget Sound craft. Development of specialized fittings, and of gurdies adapted to wire gear, were expected to encourage use of alloy gear in the future.

In recent years, and notably in 1949, the concept of small boat refrigeration has changed, until now the compressors and frost coils are designed to preserve ice rather than fish. Thus they enable a boat to reach the banks with her ice unmelted and in good condition. Consequently she can land more fish of prime quality if she has an abundance of ice.

1949—Seattle Halibut Fleet Landings by Months—1949

		Halibut No. 1		Halibut No. 2		Lingcod		Rockfish		Sablefish		TOTAL	
Months	Trips	Pounds	Value	Pounds	Value	Pounds	Value	Pounds	Value	Pounds	Value	Pounds	Value
January	16	....	....	....	....	132,837	$ 12,476	18,831	$ 1,777	....	....	151,668	$ 14,253
February	7	....	....	....	....	53,910	5,978	9,732	964	....	....	63,642	6,942
March	13	....	....	....	....	65,489	7,784	14,804	1,605	1,614	$ 202	81,907	9,591
April	9	....	....	....	....	48,947	5,429	3,196	302	....	....	52,143	5,731
May	83	1,773,115	$ 378,987	1,045,653	$ 195,663	26,926	1,512	4,118	204	2,229	191	2,852,041	576,557
June	92	1,462,982	362,600	1,275,145	256,956	11,462	540	9,114	462	3,635	365	2,762,338	620,914
July	97	1,524,883	320,566	1,820,231	337,792	658	33	1,586	80	94,613	10,417	3,441,971	668,888
August	31	38,245	11,474	2,758	816	1,312	67	23,213	1,155	401,336	41,661	466,864	55,173
September	48	78,448	23,571	19,918	5,975	6,568	328	53,669	2,683	544,763	53,763	703,020	86,320
October	50	53,188	15,956	2,364	709	32,213	2,412	38,559	1,866	518,938	49,147	645,262	70,090
November	27	22,265	6,680	....	....	37,880	2,898	15,722	1,796	246,647	21,963	322,514	33,337
TOTAL	473	4,953,126	$1,119,834	4,166,069	$ 797,911	418,202	$ 39,457	192,544	$ 12,894	1,813,775	$177,709	11,543,370	$2,147,796
1948 Total	461	4,990,417	$1,136,824	4,089,321	$ 742,761	491,683	$ 53,744	229,698	$ 14,387	1,372,309	$227,947	11,200,428	$2,175,663
1947 Total	302	3,705,918	$ 972,481	1,887,355	$ 423,103	301,745	$ 31,630	165,098	$ 12,149	1,378,694	$179,151	7,438,840	1,619,199
1946 Total	458	6,823,696	1,509,839	6,299,384	1,286,712	261,803	23,787	218,598	14,136	1,358,433	199,832	14,961,914	3,034,336
1945 Total	459	6,517,387	1,148,683	5,376,141	2,008,265	893,283	86,952	287,623	24,030	572,376	65,816	13,676,821	2,185,062

Seattle Halibut Sales by Months and Grades with Average Prices Paid

	Western No. 1—Lbs.	Average Price	Western No. 2—Lbs.	Average Price	Local No 1—Lbs.	Average Price	Local No. 2—Lbs.	Average Price	Total Lbs.	General Average Price
1949										
May	1,001,033	20.34	536,929	20.97	772,082	22.72	508,724	16.26	2,818,768	20.38
June	1,052,663	24.81	895,006	20.93	410,319	24.71	380,139	18.31	2,738,127	22.62
July	1,521,299	21.01	1,820,201	18.55	3,584	25.27	30	16.66	3,245,114	20.28
August	....	....	....	....	38,245	30.00	2,758	29.58	41,003	29.97
September	....	....	....	....	78,448	30.03	19,918	29.99	98,366	30.03
October	....	....	....	....	53,188	29.99	2,364	29.99	55,552	29.99
November	....	....	....	....	22,265	30.00	....	....	22,265	30.00
TOTALS	**3,574,995**	**21.94**	**3,252,136**	**19.60**	**1,378,131**	**24.33**	**913,933**	**17.52**	**9,019,195**	**21.26**
1948										
May	1,020,621	19.60	620,005	16.90	1,020,523	20.18	838,026	12.65	3,499,175	17.66
June	1,054,668	25.60	645,894	23.98	398,438	22.14	417,870	14.48	2,516,870	22.79
July	1,362,315	24.38	1,567,124	20.18	6,200	25.46	402	22.88	2,936,041	22.14
August	....	....	....	....	23,482	31.13	....	....	23,482	31.13
September	....	....	....	....	30,631	30.29	....	....	30,631	30.29
October	....	....	....	....	52,751	30.03	....	....	52,751	30.03
November	....	....	....	....	20,788	29.99	....	....	20,788	29.99
TOTALS	**3,437,604**	**23.34**	**2,833,023**	**20.33**	**1,552,613**	**21.54**	**1,256,298**	**13.26**	**9,079,738**	**20.70**
1947										
May	70,500	20.06	22,500	16.11	64,616	21.36	91,670	16.48	249,286	18.73
June	....	....	....	....	78,741	24.71	76,300	20.37	155,041	22.57
July	856,000	26.71	415,000	23.54	3,000	30.66	....	....	1,274,000	25.69
August	2,484,723	26.26	1,277,752	23.52	9,067	27.26	4,133	22.69	3,775,676	25.06
September	....	....	....	....	71,850	28.50	....	....	71,850	28.50
October	....	....	....	....	48,200	28.81	....	....	48,200	28.81
November	....	....	....	....	19,250	31.95	....	....	19,250	31.95
TOTALS	**3,411,224**	**26.24**	**1,715,252**	**22.84**	**294,724**	**26.19**	**172,103**	**18.36**	**5,593,303**	**24.96**
1946										
May	760,785	17.49	520,374	16.00	948,603	17.50	755,535	16.00	2,985,297	16.86
June	1,471,628	17.50	1,285,372	16.00	627,406	17.49	571,797	15.99	3,956,203	16.79
July	1,677,955	27.10	1,726,606	24.49	3,188	25.84	574	21.08	3,408,323	25.78
August	1,222,467	28.61	1,416,326	25.05	8,932	24.68	2,477	22.85	2,650,202	26.69
September	....	....	....	....	35,499	34.10	8,671	32.26	44,170	33.74
October	....	....	....	....	67,233	35.00	11,652	35.00	78,885	35.00
TOTALS	**5,132,835**	**23.28**	**4,948,678**	**21.55**	**1,690,861**	**18.59**	**1,350,706**	**16.28**	**13,123,080**	**21.31**
1945										
May	1,000,955	17.60	527,658	16.02	867,807	17.70	731,031	16.13	3,127,451	17.01
June	954,642	17.50	697,771	16.01	604,155	17.48	541,412	16.04	2,797,980	16.84
July	1,474,360	17.51	1,335,125	15.85	2,468	17.83	653	16.23	2,812,606	16.72
August	737,993	17.50	664,934	16.00	5,489	17.56	323	16.09	1,408,739	16.79
September	589,289	17.49	600,878	16.01	2,959	17.13	2,557	15.99	1,195,683	16.75
October	268,696	17.50	257,481	16.00	25,841	17.49	11,029	16.00	563,047	16.78
November	....	....	....	....	12,733	17.49	5,289	15.99	18,022	17.05
TOTALS	**5,025,935**	**17.52**	**4,083,847**	**15.95**	**1,521,452**	**17.46**	**1,292,294**	**16.09**	**11,923,528**	**16.84**
1944										
May	....	....	....	....	14,788	17.50	12,509	16.22	26,847	16.82
June	915,058	17.49	433,488	15.99	1,282,148	17.49	1,177,613	15.99	3,808,307	16.86
July	1,470,157	17.54	1,063,302	16.02	567,313	17.78	521,771	16.23	3,622,543	16.94
August	357,916	17.49	288,204	16.00	19,151	17.82	7,708	16.16	672,979	16.86
September	552,408	17.44	406,659	15.87	15,532	17.92	6,213	16.15	980,812	16.58
October	487,755	17.49	391,903	15.99	16,697	17.80	5,062	15.78	901,417	16.84
November	703,252	17.49	678,366	16.00	8,464	17.66	2,136	16.11	1,392,218	16.76
TOTALS	**4,486,546**	**17.50**	**3,261,922**	**15.99**	**1,924,093**	**17.59**	**1,733,012**	**16.05**	**11,405,123**	**16.86**
1943										
April	427,713	39.30	139,727	19.30	264,531	22.20	326,288	20.80	1,158,259	21.70
May	1,439,713	22.80	706,465	20.90	792,465	22.70	1,097,792	21.00	4,035,928	22.10
June	1,728,657	24.40	1,254,458	22.50	930,888	24.70	963,712	22.40	4,877,715	23.50
†July	1,056,041	23.80	911,150	19.80	10,070	23.60	6,773	19.50	1,984,034	22.00
August	50,188	17.50	27,064	16.00	9,495	17.40	5,036	17.30	91,783	17.10
September	147,814	17.40	51,738	15.90	22,952	17.40	8,611	15.90	231,115	17.10
October	....	....	....	....	30,060	17.50	7,566	15.90	37,626	17.20
TOTALS	**4,850,126**	**23.40**	**3,090,602**	**21.10**	**2,060,461**	**23.45**	**2,415,778**	**21.51**	**12,416,460**	**22.47**
1942										
April	304,127	13.87	105,053	12.97	174,173	17.72	129,469	14.76	712,822	14.84
May	1,136,632	14.66	600,406	13.92	1,079,112	14.76	857,386	13.43	3,673,536	14.28
June	576,170	17.69	576,242	16.65	991,016	17.88	911,002	16.54	3,054,430	17.21
July	749,795	20.26	784,953	17.87	251,217	17.13	277,608	15.60	2,063,573	18.35
August	749,903	20.02	790,811	16.91	20,183	24.33	5,167	16.62	1,566,064	18.49
September	1,207,665	19.54	1,058,532	17.21	39,123	23.77	4,185	21.16	2,309,505	18.55
October	357,802	19.89	318,958	17.63	28,276	24.86	2,010	21.44	707,046	19.07
TOTALS	**5,082,094**	**18.10**	**4,234,955**	**16.66**	**2,583,100**	**16.71**	**2,186,827**	**15.12**	**14,086,976**	**16.95**
1941 TOTALS	**8,394,343**	**11.98**	**5,653,244**	**11.79**	**2,595,348**	**11.60**	**2.030,081**	**9.94**	**18,393,670**	**11.82**
1940 TOTALS	**7,343,438**	**10.67**	**5,468,809**	**10.25**	**2,901,430**	**10.33**	**2,823,870**	**9.44**	**18,565,838***	**10.30**
1939 TOTALS	**8,171,019**	**9.30**	**5,399,244**	**8.84**	**2,962,012**	**8.49**	**3,285,078**	**7.08**	**19,892,739**	**8.69**
1938 TOTALS	**9,087,516**	**8.90**	**5,536,117**	**8.60**	**2,532,098**	**8.43**	**3,614,035**	**6.54**	**20,769,766**	**8.35**
1937 TOTALS	**10,013,021**	**9.79**	**5,523,057**	**8.33**	**2,608,758**	**9.71**	**3,021,157**	**7.60**	**21,165,993**	**9.09**
1936 TOTALS	**10,431,015**	**9.17**	**6,974,279**	**8.50**	**2,762,428**	**8.76**	**2,404.854**	**7.76**	**22,572.576**	**8.76**
1935 TOTALS	**11,465,100**	**.0864**	**4,710,000**	**.0794**	**3,066,500**	**.0826**	**2,450,100**	**.0719**	**21,691,700**	**.0827**
1934 TOTALS	**10,265,600**	**.0776**	**3,784,400**	**.0666**	**2,912,050**	**.0867**	**3,243,750**	**.0656**	**20,205,800**	**.0749**
1933 TOTALS	**10,785,700**	**.0747**	**3,912,000**	**.0586**	**2,718,300**	**.0787**	**4,345,400**	**.0516**	**21,761,400**	**.0677**
1932 TOTALS	**9,189,700**	**.0559**	**3,615,000**	**.0333**	**3,433,200**	**.0651**	**5,553,250**	**.0381**	**21,791,150**	**.0484**

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*Includes 11,736 lbs. landed in January and February. **Included with Western. †Ceiling prices became effective July 13, 1943.

Data from 1936 to 1941 are official figures, based upon statistics of the United States Fish & Wildlife Service, which are based on amounts of halibut actually weighed out, graded and paid for. Data for years previous to 1936 represent fares as hailed and sold on the Seattle Fish Exchange. Note that prices for 1936 and after are quoted in cents and for previous years in decimals of a dollar.

Figures given here are for sales over the Seattle Fish Exchange only and quantities do not coincide precisely with other totals for Puget Sound landings, which include minor quantities landed and sold elsewhere.

Washington Eulachon Smelt Catches

YEAR	COWLITZ RIVER POUNDS	GRAYS RIVER POUNDS	LEWIS RIVER POUNDS	COLUMBIA RIVER POUNDS	Total Pounds
1939	1,012,730	30,300	1,342,675	184,348	2,570,053
1940	730,170	60,450	1,341,250	384,650	2,516,520
1941	1,794,233	....	376,975	42,919	2,214,127
1942	1,570,915	51,750	....	54,325	1,676,990
1943	2,973,340	3,675	270,375	124,500	3,371,790
1944	1,125,674	10,900	504,000	249,522	**1,942,771
1945	2,048,438	42,753	1,552,770	215,040	* 3,891,463
1946	2,674,040	300	....	51,099	2,725,439
1947	1,192,663		....	128,280	1,320,943
1948	2,197,810	....	547,590	296,240	3,041,640
1949	750	250	1,940,850	387,701	2,329,551

* Includes 32,462 lbs. caught in the Kalama River.

** Includes 44,300 pounds from Kalama River; 7,675 pounds from Naselle River; and 700 pounds from Nemah River.

1949—CALIFORNIA SHELLFISH FREEZING—1949

SPECIES	Frozen Nov., 1948 Pounds	Frozen Dec., 1948 Pounds	Frozen Jan., 1949 Pounds	Frozen February Pounds	Frozen March Pounds	Frozen April Pounds	Frozen May Pounds	Frozen June Pounds	Frozen July Pounds	Frozen August Pounds	Frozen September Pounds	Frozen October Pounds	Total Pounds
SHELLFISH:													
Clams	....	380	....	1,120	420	210	....	....	....	1,040	....	....	3,170
Crab (including Crabmeat)	111	632	6,600	1,780	640	6,915	10,986	9,310	5,899	2,830	2,560	150	48,413
Lobster tails (spring)	7,906	45,922	52,750	73,150	35,717	....	....	....	....	1,200	2,200	30,375	249,220
Oysters	4,789	....	....	25	1,170	2,124	348	384	....	....	....	....	8,840
Shrimps (including shrimp meat)	130,500	230,099	87,545	117,959	191,818	31,183	450	22,275	21,440	5,269	4,874	161,714	1,005,126
Squid	....	19,041	15,552	....	68,909	79,978	72,870	135,695	23,088	49	....	57,350	472,532
Unclassified	220	....	14,100	6,536	1,794	2,596	....	1,276	1,348	2,575	....	496	30,941
Total	143,526	296,074	176,547	200,570	300,468	123,006	84,654	168,940	51,775	12,963	9,634	250,085	1,818,242

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REDUCTION GEARS—Twin Disc Reduction Gears, for use where required shaft speeds are slower than engine operating speeds, combine a complete clutch power take-off and reduction gear cased in a single, compact, rugged unit. Capacities up to 140 hp. TWIN DISC CLUTCH COMPANY, Racine, Wisconsin (Hydraulic Division, Rockford, Illinois).

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1949—CALIFORNIA FROZEN SHELLFISH HOLDINGS BY MONTHS—1949

Species	Nov. 1948 Pounds	Dec. 1948 Pounds	Jan. 1949 Pounds	February Pounds	March Pounds	April Pounds	May Pounds	June Pounds	July Pounds	August Pounds	September Pounds	October Pounds
Clams	40.800	41,778	44,880	45,879	43,587	38,205	33,412	40,636	33,316	39,277	34,730	26,228
Crabs (including crabmeat)	44,545	44,650	48,038	50,063	45,927	43,318	50,653	50,492	69,327	82,131	73,983	61,052
Lobster tails (spiny)	34,194	80,721	126,937	201,762	201,765	142,273	107,155	396,524	166,989	110,465	103,304	123,816
Oysters	36,365	38,603	38,180	40,343	68,581	78,473	83,051	26,641	79,178	67,542	55,868	38,436
Scallops	160,241	158,738	194,905	260,103	168,499	153,682	156,793	64,702	172,012	150,010	122,966	114,458
Shrimp (including shrimpmeat)	1,909,910	2,255,582	1,742,569	1,639,674	1,334,673	1,921,783	1,146,850	1,363,659	766,497	441,892	542,352	1,226,411
Squid	17,332	25,266	6,018	5,525	28,697	96,321	87,201	92,932	158,754	157,819	131,588	143,670
Unclassified	185,957	220,342	223,260	245,953	279,867	304,907	365,956	224,889	220,106	172,776	132,678	137,036
Total	**2,429,344**	**2,865,680**	**2,424,787**	**2,489,302**	**2,171,596**	**2,778,962**	**2,031,071**	**2,260,475**	**1,666,179**	**1,221,912**	**1,197,469**	**1,871,107**

1949—Seattle Wholesale Imports From British Columbia—1949

Variety **Fresh and Frozen**	Dec., 1948 Pounds	Jan., 1949 Pounds	February Pounds	March Pounds	April Pounds	May Pounds	June Pounds	July Pounds	August Pounds	September Pounds	October Pounds	November Pounds	Total 1949 Pounds	Total 1948 Pounds
Flounder Fillets	......	......	......	......	......	......	......	......	......	......	......	......	......	14,375
Halibut	......	......	......	......	......	436,346	52,332	102,967	11,990	2,982	8,684	......	615,301	819,367
Frozen	......	14,300	100,510	406,328	72,615	8,692	5,130	244,348	19,000	30,010	14,170	118,935	1,034,038	1,261,000
Herring	......	......	......	......	......	......	......	......	......	......	......	......	......	80,700
Frozen	3,500	......	......	30,500	......	......	40,500	......	10,000	814	100	1,000	86,414	1,226,403
Lingcod	......	......	......	55,501	18,689	16,370	6,269	11,456	36,183	2,668	305	......	147,441	146,956
Frozen	625	......	......	15,250	12,913	......	......	......	......	......	24,050	......	52,838	126,953
Perch	......	......	......	......	1,166	......	......	......	......	......	......	1,000	2,166	1,600
Rockfish	......	......	......	1,735	2,783	......	......	3,284	......	......	8,218	......	16,020	4,170
Frozen	......	......	......	......	......	......	900	......	......	......	......	......	900	......
Sablefish	......	......	......	......	......	......	303	......	6,532	......	7,090	......	13,925	4,199
Frozen	......	......	......	......	......	......	......	......	......	......	......	......	......	7,964
SALMON:														
Chinook	......	139	......	287	27,620	74,443	618,506	995,810	1,316,253	903,827	188,752	694	4,126,331	3,615,103
Frozen	14,005	1,942	......	76,583	88,825	8,100	8,040	21,858	65,000	5,000	8,200	5,000	302,553	628,475
Chum	......	......	......	......	......	......	......	......	......	335,695	683,626	958,611	1,977,932	......
Frozen	244,640	......	199,041	76,619	72,969	57,560	113,599	38,818	......	207,585	693,324	1,493,967	3,198,122	5,997,761
Pink	......	......	......	......	......	......	......	......	......	89,177	95,305	......	184,482	17,680
Frozen	11,380	......	......	......	......	......	......	......	......	......	29,896	......	41,276	11,380
Silver	......	......	......	......	......	......	1,440	......	......	......	13,640	......	15,080	316,051
Frozen	6,525	......	......	7,000	15,000	10,600	......	......	......	......	......	10,278	49,403	602,923
Unclassified	......	......	......	......	......	......	......	......	......	......	......	......	......	58,997
Frozen	......	......	......	31,486	2,000	......	......	......	......	......	......	......	33,486	65,572
Smelt, Eulachon	......	......	......	......	5,340	7,500	......	......	......	......	......	......	12,840	4,000
Frozen	......	......	100	......	20,700	......	......	......	......	......	......	......	20,800	17,070
Sole, Unclassified	......	......	......	......	5,175	......	21,834	......	......	......	......	......	27,009	......
Clams	13,500	31,390	49,005	34,570	209,720	235,481	74,513	53,512	66,530	20,510	4,615	......	793,346	......
Clammeat	2,810	14,026	5,070	5,302	3,235	......	6,534	2,070	720	200	250	......	40,217	[1]508,659
Crabs	......	......	......	......	......	......	......	......	......	11,610	3,580	......	15,190	[2]18,817
Tuna, Albacore	......	40,000	......	......	......	......	......	......	104,914	6,989	......	......	151,903	34,730
Frozen	......	......	......	......	......	......	......	12,000	......	66,012	......	56,115	134,127	144,225
Fillets, Sole	2,500	2,050	50	1,692	......	......	450	1,000	665	......	......	1,700	10,107	27,462
Frozen	6,310	......	31,680	151,150	76,200	1,080	9,330	1,000	12,124	8,100	15,508	29,780	342,262	548,275
Fillets, other	......	......	3,702	500	......	5,043	......	......	330	3,575	......	......	13,150	12,940
Frozen	......	11,003	2,621	16,090	......	22,080	3,000	1,000	......	9,560	14,775	14,525	94,654	257,508
Miscellaneous	......	......	......	......	......	......	......	......	......	......	......	......	......	12,598
Frozen	......	......	......	......	......	......	......	......	......	......	......	......	......	156,712
Miscellaneous Shellfish	310	......	......	......	......	......	......	......	......	......	......	......	310	310
Total Fresh	19,120	87,605	57,827	99,587	273,728	775,183	782,181	1,170,099	1,544,117	1,377,233	1,014,065	962,005	8,162,750	5,686,116
Total Frozen	286,985	27,245	333,952	811,006	361,222	108,112	180,499	319,024	106,124	327,081	800,023	1,729,600	5,390,873	11,064,819
GRAND TOTAL	306,105	114,850	391,779	910,593	634,950	883,295	962,680	1,489,123	1,650,241	1,704,314	1,814,088	2,691,605	13,553,623	16,750,935
Cured Fish:														
Codfish, salted Lbs.	31,000	2,250	1,500	......	......	......	......	......	......	......	10,500	......	45,250	78,131
Codfish Fillets, smoked Lbs.	......	......	6,600	15,850	43,210	5,775	11,475	6,500	6,750	12,500	8,250	23,250	140,160	[3]50,240
Other Meals Tons	......	......	......	......	......	......	......	......	......	......	507	......	507	......
Finnan Haddie Lbs.	......	......	1,300	6,375	4,500	2,625	1,875	1,125	450	375	3,750	5,625	28,000	168,190
Herring, salted Lbs.	......	......	......	......	......	......	......	......	......	......	206	......	206	[4]22,890
Herring, Kippered Lbs.	6,430	1,870	3,250	1,820	850	......	......	......	......	......	970	6,110	21,300	230,030
Mackerel, salted Lbs.	......	......	14,500	......	......	......	......	......	......	......	......	......	14,500	2,000
Salmon, mild cured Tcs.	......	......	......	......	......	......	2	125	45	......	60	......	232	390
Salmon, Kippered Lbs.	2,500	......	990	1,255	610	570	365	250	100	1,171	......	......	7,811	5,825
Unclassified Lbs.	......	......	46,323	......	......	......	......	......	......	......	......	......	46,323	......
Herring Meal Tons	930	630	1,509	1,870	480	......	......	......	......	23	......	......	5,442	5,263

[1] This figure is clams and clammeat. [2] This figure is crabs and crabmeat. [3] This is codfish, dried. [4] This figure in barrels.

1949—RECEIPTS BY SEATTLE WHOLESALE DEALERS—1949

SPECIES	December, 1948 Pounds	January, 1949 Pounds	February Pounds	March Pounds	April Pounds	May Pounds	June Pounds	July Pounds	August Pounds	September Pounds	October Pounds	November Pounds	1949 Total Pounds
Carp, California			3,810	3,450	9,025	1,320	1,400		2,700	4,100	1,880		27,685
Cod, true—Dressed	30,295	33,664	63,095	72,865	68,275	109,080	36,729	25,168	53,635	70,786	50,959	27,104	641,655
Round	66,542	108,612	107,135	134,640	61,160	57,130	26,905	50,013	125,055	200,470	255,345	77,875	1,270,882
Alaska frozen							3,050						3,050
Other	6,166	10,230	5,560	8,730	3,015	4,342	198				2,800	4,138	45,179
Dolly Varden Trout—Alaska frozen		1,267				5,733	5,893	1,072		1,270			15,235
Round	90,978	1,260	4,575	1,774	3,205	2,010	215		11,839	19,127	51,525	4,905	191,413
Other	1,147	2,105	395	175		428					1,790	2,100	8,140
Halibut—No. 1, Dressed						1,773,115	1,462,982	1,524,883	38,245	78,448	53,188	22,265	4,953,126
No. 2, Dressed						1,045,653	1,275,145	1,820,231	2,758	19,918	2,364		4,166,069
B. C. Import						436,346	52,332	102,967	11,990	2,982	8,684		615,301
B. C. Import, frozen		14,300	100,510	406,328	72,615	8,692	5,130	244,348	19,000	30,010	14,170	118,935	1,034,038
Alaska						13,692							13,692
Alaska frozen	299,788	2,024,425	501,686	426,246	53,187	41,828	1,709,577	1,105,961	1,644,272	1,363,938	550,504	1,992,147	11,713,559
Other						344,285	4,972	7,450	2,100	13,122	11,328	11,360	394,617
Total Halibut	299,788	2,038,725	602,196	832,574	125,802	3,663,611	4,510,138	4,805,840	1,717,518	1,508,418	640,238	2,144,707	22,889,555
Herring—Round			9,040	8,075	9,720								26,835
Alaska frozen					80,000						3,100		83,100
B. C. Import frozen	3,500			30,500			40,500		10,000	814	100	1,000	86,414
Lingcod—Dressed	174,815	168,071	99,277	146,489	125,232	234,872	118,131	202,764	200,312	199,322	107,034	62,741	1,839,060
Round	14,817	15,214	8,250	13,671	32,515	106,695	30,030	52,796	58,940	122,376	29,897	17,555	502,756
Other	5,564	18,320	6,757	7,152	11,288	62,762	57,103	70,709	52,489	54,329	32,630	50,593	429,696
B. C. Import				55,501	18,689	16,370	6,269	11,456	36,183	2,668	305		147,441
B. C. Import, frozen				15,250	12,913						24,050		52,213
Alaska frozen	625	14,177	3,301	885			470		4,433		7,903	22,495	54,289
Perch—Round	2,704	1,293		16,750	37,365	16,209		550	2,053	2,704	23,378	10,377	113,383
B. C. Import				5,351	1,166							1,000	7,517
Pilchard—Round				34,990	2,210	9,380	2,695						49,275
Rockfish—Dressed		18,831	9,732	14,805	3,196	1,140	9,114	1,581	23,213	53,669	38,559	15,722	189,562
Round	335,010	1,229,125	414,017	1,151,825	979,080	543,545	826,923	479,365	422,047	599,082	410,247	515,395	7,905,661
Other	5,219	2,118	2,421	14,980	8,035	26,063	16,468	16,183	13,456	21,189	31,470	5,009	162,611
Alaska, frozen		3,451		625									4,076
B. C. Import				1,735	2,783			3,284			8,218		16,020
B. C. Import, frozen							900						900
Sablefish—Dressed	11,047	8,065		1,629	1,837	4,696	31,992	82,715	416,677	549,703	525,981	254,482	1,888,824
Round	145	22,960				430	13,964	58,853	18,830	30,352	18,357	14,115	178,006
Other	240	707		55	500	8,752	27,577	18,425	19,350	67,807	46,363	24,758	214,534
B. C. Import							303		6,532		7,090		13,925
Alaska frozen	1,077	109,471	168,703	173,810	7,990		10,133	90,031	173,250	201,106	195,216	187,927	1,318,714
Salmon*—Chinook	22,322	148,759	87,733	259,461	404,590	752,373	1,666,970	2,168,104	2,685,300	1,504,585	487,028	78,754	10,265,979
Chum	284,654	495,926	266,880	76,619	72,969	57,560	113,599	38,818	111,510	682,179	1,782,182	3,463,050	7,445,946
Pink	11,380	98,953	1,100					19,740	543,583	1,097,253	132,576	1,108	1,905,693
Silver	68,551	649,072	308,365	169,565	32,973	10,600	99,027	355,549	1,654,956	1,023,737	1,151,380	434,475	5,958,250
Sockeye		2,731					1,685	56,621	747,164	6,093			814,294
Unclassified		711		1,864									2,575
Unclassified, B. C. Impt., froz.				31,486	2,000								33,486
Total Salmon	386,907	1,396,152	664,078	538,995	512,532	820,533	1,881,281	2,638,832	5,742,513	4,313,847	3,553,166	3,977,387	26,426,223
Shad, California			1,598		1,762	4,862	707						8,929
Smelt, Eulachon, Round	6,384	1,020	10,492	139,160	17,210							23,205	197,471
B. C. Import					5,340	7,500							12,840
B. C. Import, frozen			100		20,700								20,800
Silver, Round	8,296					21,083	57,898	85,079	93,883	46,718	20,881		333,838
Sole—English Round	106,968	563,946	444,863	571,545	259,175	61,665	36,880	10,460	177,497	125,509	149,721	148,465	2,656,694
English other	16,390	15,343	6,140	1,325	1,740	115					11,750	24,197	77,000
Petrale, Round	52,580	30,625	150,415	160,765	268,791	564,939	189,755	244,852	471,831	453,951	223,352	163,670	2,975,526
Petrale, Other	307	200	193	2,207	5,665	1,800				1,525	7,475	5,668	25,040
Other, Round	1,890	9,060	300	21,455	7,635			11,690	3,450	450		950	56,880
Unclassified, B. C. Import					5,175		21,834						27,009
Swordfish, Japan Import, frozen	30,000	6,081									50,000		86,081
Tuna—Albacore, Round								8,660	321,199	1,697	68,700	3,800	404,056
Other								25,070	142,922	1,812			169,804
B. C. Import									104,914	6,989			111,903
B. C. Import, frozen		40,000						12,000		66,012		56,115	174,127
Japanese Import, frozen									416,723	21,729			438,452
Other, California							1,183	3,200					4,383

1949—RECEIPTS BY SEATTLE WHOLESALE DEALERS—1949 (Continued)

SPECIES	December, 1948 Pounds	January, 1949 Pounds	February Pounds	March Pounds	April Pounds	May Pounds	June Pounds	July Pounds	August Pounds	September Pounds	October Pounds	November Pounds	1949 Total Pounds
Fillets, Sole—Local	1,345	2,575	15,301	18,209	12,175	4,905	400	7,556	....	....	....	4,240	66,706
Frozen	10,080	29,712	....	....	9,576	....	....	....	....	....	....	....	49,368
B. C. Import	....	....	50	1,692	....	....	450	1,000	665	....	....	1,700	5,557
B. C. Import, frozen	1,000	2,050	31,680	151,150	76,200	1,080	9,330	1,000	12,124	8,100	15,508	29,780	339,002
Other	3,402	2,300	10,204	11,995	18,115	12,834	400	2,150	400	....	....	6,274	68,074
Frozen	2,090	....	....	10,595	892	....	....	....	....	....	....	....	13,577
B. C. Import	2,500	....	3,702	500	....	5,043	....	....	330	3,575	....	....	15,650
B. C. Import, frozen	6,310	11,003	2,621	16,090	....	22,080	3,000	1,000	....	9,560	14,775	14,525	100,964
Alaska frozen	....	....	....	....	....	....	....	....	....	....	....	520	520
Miscellaneous	683	2,604	....	....	....	609	....	....	....	....	....	....	3,896
Alaska frozen	....	1,129	183	....	....	....	....	....	....	2,100	....	....	3,412
Other, local	3,626	5,460	9,334	5,533	4,362	....	....	3,303	6,644	3,572	1,828	2,340	46,002
Other, local, frozen	....	....	5,415	....	....	....	....	....	....	....	....	....	5,415
Total Fish, ex vessel	885,771	2,212,244	1,301,659	2,292,053	1,861,576	4,613,780	4,377,475	4,904,516	2,946,001	2,787,558	2,184,581	1,711,801	32,079,015
Total Fish, fresh	71,514	62,770	123,468	382,577	432,672	1,629,563	1,546,179	2,484,084	4,313,187	3,650,184	2,028,532	1,958,724	18,683,454
Total Fish, frozen	733,152	3,651,912	1,439,806	1,724,872	537,798	160,273	2,056,564	1,638,057	3,605,266	2,338,696	2,418,478	4,236,309	24,541,183
GRAND TOTAL	1,690,437	5,926,926	2,864,933	4,399,502	2,832,046	6,403,616	7,980,218	9,026,657	10,864,454	8,776,438	6,631,591	7,906,834	75,303,652

* Includes fresh and frozen salmon from all sources.

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Monthly Landings of Food Fish by the Otter Trawl Fleet at Seattle 1944-1949

STATISTICS, COMPILED BY U. S. FISH AND WILDLIFE SERVICE, ARE IN TERMS OF POUNDS.

MONTH	"SOLE" AND FLOUNDERS					HALIBUT	TRUE COD	LINGCOD	SABLEFISH	ROCKFISH	MISCELLANEOUS	TOTAL
	ENGLISH SOLE	PETRALE SOLE	"TURBOT"	FLOUNDERS	TOTAL							
1944												**1944**
January....	67,053	1,298	2,390	25,859	**96,600**	....	25,485	26,323	40	36,564	224	**185,236**
February...	104,138	5,569	10,988	4,007	**124,702**	....	27,216	18,982	1,105	70,294	3,208	**245,507**
March......	151,635	58,773	50,364	6,545	**267,317**	....	32,689	37,452	7,054	228,308	13,414	**586,234**
April.......	170,887	377,237	1,810	52,142	**602,076**	....	24,212	169,887	12,308	271,788	85	**1,080,356**
May........	68,803	1,739,261	....	17,581	**1,825,645**	....	19,985	785,105	38,071	426,158	323	**3,095,287**
June.......	4,130	716,477	....	....	**720,607**	....	33,564	872,712	69,663	499,764	425	**2,196,735**
July........	4,625	275,982	....	....	**280,607**	....	39,860	509,725	380,253	373,873	....	**1,584,318**
August.....	50,880	448,510	....	195	**499,585**	....	37,768	553,823	267,624	528,105	140	**1,887,045**
September.	16,206	279,485	....	575	**296,266**	....	37,197	511,891	72,864	283,103	320	**1,201,641**
October....	16 260	350,525	....	70	**366,855**	....	32,533	239,587	97,071	1,276,650	230	**2,012,926**
November..	37,458	124,831	....	870	**163,159**	....	31,858	34,026	3,689	278,574	915	**512,221**
December..	101,835	17,565	....	846	**120,246**	....	28,602	10,647	....	83,478	3,801	**246,774**
TOTAL....	**793,910**	**4,395,513**	**65,552**	**108,690**	**5,363,665**	....	**370,969**	**3,770,160**	**949,742**	**4,356,659**	**23,085**	**14,834,280**
1945												**1945**
January....	74,170	2,780	....	7,273	**84,223**	....	23,347	7,156	100	128,317	....	**243,143**
February...	127,647	8,450	....	3,905	**140,002**	....	38,207	14,593	....	325,890	....	**518,692**
March.. ...	76,030	14,517	....	135	**90,682**	....	53,162	28,683	1,292	393,698	....	**567,517**
April... ...	102,462	321,480	....	719	**424,661**	....	151,680	189,535	1,706	1,738,264	....	**2,505,846**
May.... ...	27,405	782,955	....	3,960	**814,320**	....	246,546	720,332	495	1,888,539	....	**3,670,232**
June.......	6,890	1,756,346	....	490	**1,763,726**	....	292,023	1,095,340	1,509	1,888,211	....	**5,040,809**
July........	2,550	761,580	17,045	1,950	**783,125**	....	240,090	567,467	30,676	2,620,026	....	**4,241,384**
August.....	11,500	204,120	25,646	4,110	**245,376**	....	43,000	235,207	42,338	967,555	....	**1,533,476**
September.	2,205	192,880	3,180	165	**198,430**	....	51,070	126,535	53,361	498,738	....	**928,134**
October....	80,465	504,418	2,670	18,660	**606,213**	....	213,885	217,416	88,949	1,657,053	....	**2,783,516**
November..	97,354	129,918	505	27,280	**255,057**	....	175,455	63,515	9,499	459,245	....	**962,771**
December..	196,456	22,260	110	318,950	**537,776**	....	168,997	53,279	1,442	375,374	....	**1,136,868**
TOTAL....	**805,134**	**4,701,704**	**49,156**	**387,597**	**5,943,591**	....	**1,697,462**	**3,319,058**	**231,367**	**12,940,910**	....	**24,132,388**
1946												**1946**
January....	138,013	2,171	....	21,749	**161,933**	....	87,179	26,121	148,497	195,911	3,073	**622,714**
February ..	632,465	22,595	....	6,122	**661,182**	....	111,303	77,023	107,789	478,543	3,819	**1,439,659**
March......	400,278	34,232	....	8,730	**443,240**	....	97,744	46,414	75	817,627	2,109	**1,407,209**
April.......	364,474	376,112	....	7,546	**748,132**	....	291,268	284,668	1,750	1,472,058	1,143	**2,799,019**
May........	30,850	748,561	....	9,675	**789,086**	....	156,747	333,379	23,469	373,813	477	**1,676,971**
June......	12,301	1,024,529	....	12,560	**1,049,390**	....	261,371	553,458	25,296	579,747	1,256	**2,470,518**
July.......	....	546,820	....	....	**546,820**	....	491,911	416,200	21,079	995,920	829	**2,472,759**
August.....	6,460	334,683	....	110	**341,253**	....	52,332	119,711	97,844	756,601	811	**1,368,552**
September.	228,712	287,784	....	1,635	**518,131**	....	46,623	64,190	83,978	256,071	4,157	**973,150**
October....	50,598	41,960	....	49,475	**142,033**	....	25,135	20,583	2,860	62,450	1,358	**254,419**
November .	37,885	87,751	....	2,482	**128,118**	....	62,800	27,225	2,105	54,150	1,059	**275,457**
December..	23,831	6,375	....	585	**30,791**	....	49,455	7,659	110	61,266	1,535	**150,816**
TOTAL.. .	**1,925,867**	**3,513,573**	....	**120,669**	**5,560,109**	....	**1,733,868**	**1,976,631**	**514,852**	**6,104,157**	**21,626**	**15,911,243**
1947												**1947**
January....	32,547	1,335	....	9,344	**43,226**	....	34,915	5,965	16,405	34,408	1,548	**136,467**
February ..	309,755	29,230	....	10,952	**349,937**	....	48,342	26,222	2,523	266,633	37,194	**730,861**
March......	319,258	12,368	....	8,455	**340,031**	....	100,406	43,642	....	235,024	7,141	**726,294**
April.......	116,530	57,935	....	13,185	**187,650**	....	33,230	45,018	1,705	148,550	1,156	**417,309**
May........	72,180	512,795	....	15,759	**600,734**	....	63,303	137,825	1,009	263,310	1,764	**1,067,945**
June.......	66,300	466,218	....	16,740	**549,258**	....	221,467	157,511	4,197	147,761	....	**1,030,194**
July.......	31,133	746,670	....	36,830	**814,633**	....	137,191	357,334	29,816	357,475	....	**1,696,449**
August .. .	55,620	195,015	....	10,695	**261,330**	....	10,975	114,413	19,240	181,453	....	**587,411**
September.	140,220	183,115	....	38,570	**361,905**	....	68,440	398,835	134,208	300,910	....	**1,264,298**
October....	63,960	166,285	....	51,664	**281,909**	....	79,365	144,895	96,598	183,597	....	**786,364**
November .	179,685	122,925	....	150,244	**452,854**	....	119,403	79,886	56,114	473,211	....	**1,181,468**
December..	41,937	142,573	....	20,377	**204,887**	....	58,815	117,382	23,824	604,974	1,373	**1,011,255**
TOTAL....	**1,429,125**	**2,636,464**	....	**382,815**	**4,448,404**	....	**975,852**	**1,628,928**	**385,639**	**3,197,306**	**50,176**	**10,686,315**
1948												**1948**
January....	232,120	31,845	....	51,151	**315,116**	....	70,940	158,975	9,715	738,444	11,154	**1,304,344**
February...	533,704	33,709	....	40,911	**608,324**	....	68,702	64,925	3,961	462,588	2,408	**1,210,908**
March......	283,705	171,295	....	4,380	**459,380**	....	322,327	75,953	223	458,107	17,561	**1,333,551**
April.......	515,053	291,483	....	103,538	**910,074**	....	452,215	166,042	34	747,323	82,836	**2,358,524**
May........	287,515	1,030,871	....	97,982	**1,416,368**	....	236,012	475,061	2,525	677,927	25,617	**2,833,510**
June.......	157,480	846,920	....	11,595	**1,015,995**	....	89,993	491,413	16,680	333,668	13,280	**1,961,029**
July........	126,322	194,720	....	4,910	**325,952**	....	52,407	150,160	15,884	413,950	3,145	**961,498**
August.....	188,671	270,268	....	29,150	**488,089**	....	105,420	320,325	27,397	313,064	44,067	**1,298,362**
September.	41,715	351,615	....	192,872	**586,202**	....	381,142	346,940	95,207	623,777	31,619	**2,064,887**
October....	204,030	298,790	....	120,115	**622,935**	....	250,602	195,151	35,587	971,396	2,509	**2,078,180**
November..	222,320	155,915	....	7,990	**386,225**	....	69,482	76,210	15,942	434,634	6,175	**988,668**
December..	86,681	46,955	....	27,405	**161,041**	....	86,612	16,146	496	241,726	538	**506,559**
TOTAL....	**2,879,316**	**3,724,386**	....	**691,999**	**7,295,701**		**2,185,854**	**2,537,301**	**223,651**	**6,416,604**	**240,909**	**18,900,020**
1949												**1949**
January....	563,946	30,625	....	1,260	**595,831**	....	142,276	50,448	31,025	1,229,125	2,604	**2,051,309**
February...	444,863	150,415	....	4,575	**599,853**	....	170,230	53,617	....	414,017	....	**1,237,717**
March......	571,545	160,765	....	1,774	**734,084**	....	207,505	94,671	15	1,151,826	....	**2,188,101**
April.......	259,175	268,791	....	3,205	**531,171**	....	129,435	8,800	1,837	979,080	....	**1,650,323**
May........	61,665	564,939	....	2,010	**628,614**	....	166,210	314,641	2,897	540,567	....	**1,652,929**
June.......	36,880	189,755	....	215	**226,850**	....	66,634	136,699	42,321	826,923	....	**1,299,427**
July........	10,460	244,852	....	....	**255,312**	....	75,181	254,902	46,955	479,360	....	**1,111,710**
August.....	177,497	471,831	....	11,839	**661,167**	....	178,690	257,940	34,171	422,047	....	**1,554,015**
September.	125,509	453,951	....	19,127	**598,587**	....	271,256	315,130	35,292	599,082	....	**1,819,347**
October....	149,721	223,352	....	51,525	**424,598**	....	306,304	104,718	25,400	410,247	....	**1,271,267**
November..	148,465	163,670	....	4,905	**317,040**	....	104,979	42,416	21,950	515,395	....	**1,001,780**
December..	43,585	34,525	....	8,676	**86,786**	....	63,917	9,097	1,081	459,083	....	**619,964**
TOTAL....	**2,593,311**	**2,957,471**	....	**109,111**	**5,659,893**	....	**1,882,617**	**1,643,079**	**242,944**	**8,026,752**	**2,604**	**17,457,889**

NOTE:—Bellingham landings included in the last quarter of 1945.

Canadian Frozen Halibut Pack Shows Increase

Freezing of halibut in Canada increased substantially in 1949, reversing a trend noted in the United States freezers, where there was a tendency toward slight reduction of the frozen halibut pack in that year.

Accompanying table shows that freezing was very heavy in the month of May, approximately 50% of the entire production being in that month.

This is perhaps to be expected in Canada, as the Area 2 halibut fishing, which produces most of the Canadian halibut, barely lasted beyond May.

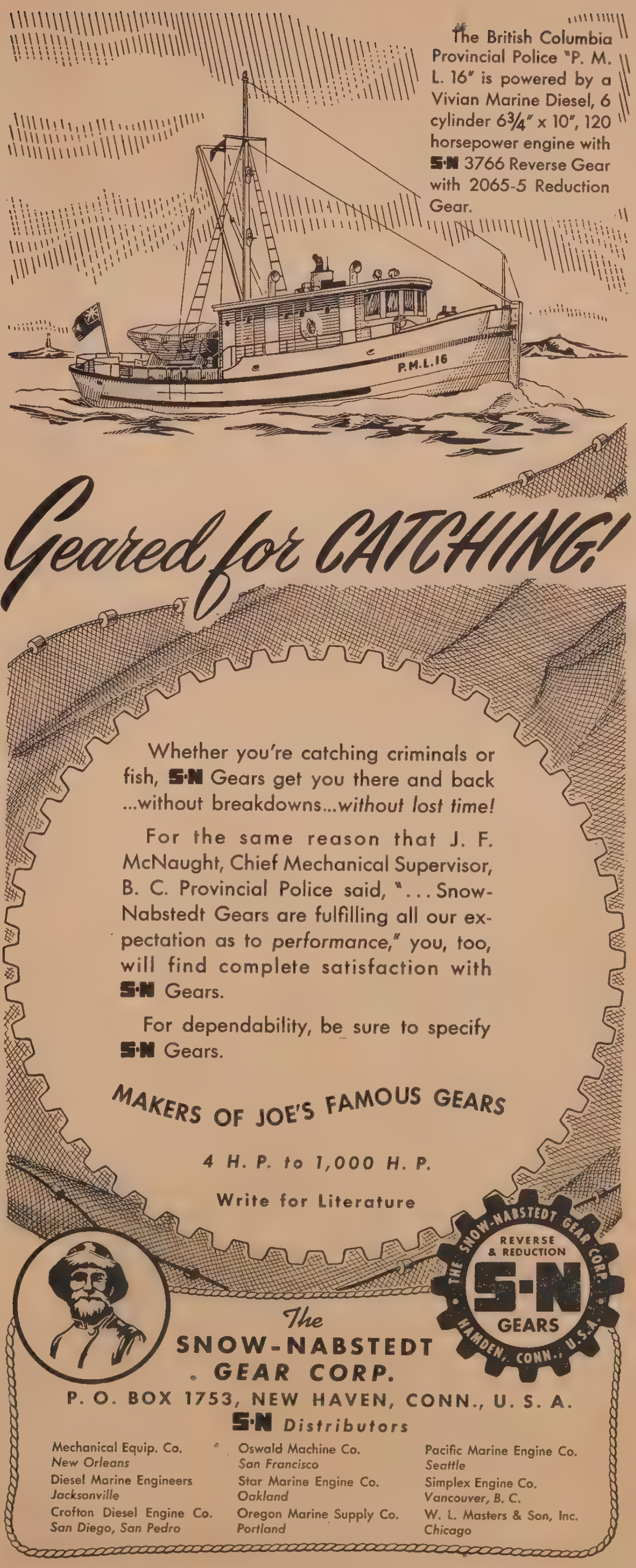
HALIBUT FREEZING IN CANADA BY MONTHS

Year	Jan. Pounds	Feb. Pounds	March Pounds	April Pounds	May Pounds	June Pounds	July Pounds	Aug. Pounds	Sept. Pounds	Oct. Pounds	Nov. Pounds	Dec. Pounds	Total Pounds
1943...............	282,093	296,651	379,829	573,065	2,311,086	2,630,088	654,403	683,421	1,149,085	175,542	100,641	86,663	9,322,567
1944...............	282,698	273,600	348,847	86,289	314,432	5,465,098	3,232,596	802,380	499,926	436,090	171,886	195,405	12,109,247
1945...............	394,811	222,238	240,413	220,018	3,489,342	3,408,682	3,408,682	645,187	924,675	924,671	623,475	362,478	14,864,672
1946...............	183,316	344,076	571,122	10,869	4,558,350	3,798,912	849,659	1,403,497	335,440	174,361	304,517	166,185	12,700,334
1947...............	332,759	217,645	358,022	167,994	6,059,714	4,782,689	2,186,016	2,575,403	287,595	206,741	52,711	18,000	17,245,289
1948...............	132,000	68,000	186,000	21,000	7,623,000	4,530,000	1,541,000	210,000	276,000	56,000	182,000	(1)	14,825,000
1949...............	24,000	(1)	21,000	15,000	7,852,000	4,971,000	1,851,000	405,000	89,000	334,000	(1)	(1)	15,562,000

(1) Data not available.

Note—All figures in accordance with latest reports.

Source—Dominion Bureau of Statistics—Department of Trade and Commerce—monthly reports.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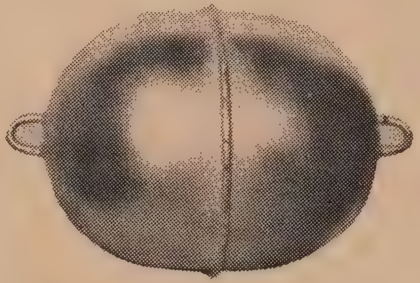

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PACKAGED FISH

Fish packaging made marked gains on the Pacific Coast in 1949 as operators converted their frozen fillet business from the military to the consumer market, and from the bulk pack to the modern beautifully finished, vapor-tight package.

The trend was marked in shellfish as well as in fillets, and going into 1950 there was good reason to believe that large developments were impending in the use of packages, packing materials, and wrapping machines.

Waning of the sellers' market and return of the buyer to power in 1949 produced a number of interesting developments in the field of frozen fish packing and packaging. For example, Eardley Fish & Fillet Co. took to "tailoring" halibut and lingcod for particular markets. For example, large halibut were flitched to produce four big fillets, and then each of these were cross-cut into lengths suitable for an institution-size baking pan. These large cuts were frozen to provide an item specially designed to suit the requirements of the cafeteria trade.

Fish for Fish-N-Chips

Another frozen fish specialty designed to meet a particular need was put out by the Eardley company. This consisted of large lingcod fillets which were run through the company's Jenson skinning machine (whose blade was set high, about a half-inch up). This produces a split fillet of uniform thickness, which was subsequently cut into equal lengths by means of a slotted board. The result was a product designed to meet the needs of the fish-and-chips shop for pieces which would cook uniformly and provide roughly equal portions.

Two Eureka Developments

Hallmark Fisheries of Eureka, Calif., started marketing specially selected 3-lb. crabs, frozen whole and cellophane-wrapped, under the trade name "Trinidad Jumboes;" and reported remarkably active demand for the special pack.

Another Eureka development of note was the new package line put out by Theo. Weissich Fish Co., which re-equipped its plant to pack

SAN DIEGO AREA FRESH FISH LANDINGS

Species	November 1948 Pounds	December 1948 Pounds	January 1949 Pounds	February Pounds	March Pounds	April Pounds	May Pounds	June Pounds	July Pounds	August Pounds	September Pounds	October Pounds	Total Pounds
Herring	....	....	200	....	....	....	....	....	....	....	....	....	200
Anchovy	....	....	....	....	....	1,000	....	....	....	....	....	....	1,000
Barracuda	58,614	14,851	25,619	32,941	45,765	16,990	107,844	43,353	278	3,568	....	36,734	386,557
Cabrilla	....	....	....	....	....	....	....	....	....	....	....	30,902	30,902
Lingcod	....	1,307	....	....	....	....	....	....	....	....	....	....	1,307
California Halibut	10,784	6,565	9,832	11,481	23,441	23,441	7,328	10,871	....	4,888	19,177	....	110,024
Grouper	....	....	....	7,247	....	....	....	....	....	....	....	....	7,247
Kingfish	1,449	1,653	....	....	....	928	943	....	....	....	1,528	951	7,452
Mackerel	32,323	9,349	....	174	1,449	9,758	20,470	78,339	11,488	82,630	37,421	32,414	315,815
Pilchard	....	....	....	....	....	....	....	....	10,645	21,350	....	895	32,890
Rockfish	564	1,183	4,103	3,750	4,825	507	7,208	795	....	....	541	1,631	25,107
Rock Bass	....	....	....	993	....	1,827	1,766	505	588	....	....	246	5,925
Sea Bass: Black	2,789	2,007	121	718	820	164	656	355	523	175	....	277	8,605
White	2,782	7,934	....	1,632	1,345	....	1,278	9,492	626	236	532	2,099	27,956
Sculpin	....	....	....	....	331	6,198	185	....	....	....	....	....	6,714
Shark	3,733	2,926	215	349	1,345	153	2,361	1,863	16,490	1,930	2,666	3,491	37,522
Sheepshead	....	576	717	466	....	....	....	....	....	570	....	....	2,329
Spiny Lobster	3,276	1,311	150	....	633	....	....	....	....	....	....	5,618	10,988
Swordfish	7,678	....	....	....	....	....	....	483	14,866	7,814	5,298	....	36,139
Tuna: Albacore	....	....	....	....	....	....	....	....	208,434	59,681	....	....	268,115
Bonito	914	203	174	288	....	....	13,326	2,294	....	....	....	1,125	18,324
Yellowtail	68,174	53,281	583	10,367	10,311	17,682	16,189	18,916	....	....	....	14,739	210,242
Whitefish	....	626	1,500	1,120	....	132	....	....	....	307	....	....	3,685
Miscellaneous	472	757	344	1,455	304	458	275	208	367	1,034	....	452	6,126
Smelt	....	....	655	....	....	....	....	....	....	....	....	....	655
Skate	....	....	....	114	....	....	....	....	....	....	....	....	114
Jack Mackerel	....	....	....	....	322	....	....	....	....	....	....	....	322
Spanish Mackerel	....	....	....	....	732	....	100	....	....	....	....	....	832
Sablefish	....	....	....	....	....	....	....	....	....	249	....	....	249
Bluefin	....	....	....	....	....	....	....	....	895	1,945	....	....	2,840
Total	193,552	104,529	44,213	73,095	91,623	61,454	179,929	167,474	265,200	186,377	67,163	131,574	1,566,183

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Foil Box Used for Shrimp

Believed to represent first use of the folded aluminum foil box in packaging Pacific Coast seafoods is "Polar Star" frozen Alaska shrimp meat, packed at Petersburg by the

SAN PEDRO-SANTA MONICA AREA FRESH FISH LANDINGS

Species	Nov., 1948 Pounds	Dec., 1948 Pounds	Jan., 1949 Pounds	February Pounds	March Pounds	April Pounds	May Pounds	June Pounds	July Pounds	August Pounds	September Pounds	October Pounds	Total Pounds
Corbina	....	....	....	....	....	640	....	....	....	....	....	....	640
Anchovy	4,045	1,360	7,670	11,465	33,925	41,419	24,410	36,700	5,620	3,391	1,380	955	172,340
Barracuda	11,402	6,066	34,292	212,864	122,298	170,583	144,349	212,860	122,220	138,019	83,998	56,771	1,315,722
Cabrilla	13,685	37,045	19,972	7,943	28,137	11,909	2,549	8,974	30,993	3,087	5,728	6,106	176,128
Grouper	10,680	40,876	13,990	9,722	15,729	5,733	1,041	22,482	35,228	862	4,434	7,912	168,689
California Halibut	16,317	4,384	1,104	16,211	91,699	64,318	29,197	20,457	3,503	10,424	4,598	8,163	270,375
Jack Mackeral	16,449	41,592	28,350	41,917	64,754	126,663	9,803	7,310	4,104	53,914	55,912	59,388	510,156
Kingfish	21,489	7,156	6,240	23,629	38,221	33,818	31,849	26,895	19,430	21,581	10,448	6,515	247,271
Lingcod	....	....	....	....	805	....	126	509	....	....	....	....	1,440
Mackerel	211,156	249,361	1,995	1,823	540	19,190	65,684	125,708	49,803	193,303	214,886	270,941	1,404,390
Perch	4,209	9,587	2,339	14,867	25,883	9,557	2,127	1,173	492	973	1,162	3,183	75,552
Pilchard	1,298,599	245,726	135,029	350	1,100	14,395	5,428	7,355	32,350	22,708	60,750	72,675	1,896,465
Pompano	3,497	6,014	1,080	2,756	2,567	1,343	3,623	331	277	1,086	502	1,385	24,461
Rock Bass	3,729	1,397	....	2,104	7,432	7,242	5,259	8,393	4,460	1,057	3,761	8,961	53,795
Rockfishes	36,010	53,848	38,604	55,362	57,493	58,056	51,747	32,832	269	3,213	2,226	15,664	405,324
Sablefish	1,057	167	....	11,555	15,193	8,004	2,145	....	....	....	....	148	38,269
Sand Dabs	125	340	....	....	....	....	130	....	....	....	....	....	595
Sculpin	3,325	9,541	676	5,351	6,838	8,417	3,544	17,423	15,209	14,565	5,298	5,697	95,884
Sea Bass—Black	22,477	11,487	1,419	2,801	3,240	3,253	4,164	104	26,751	1,945	4,064	8,997	90,702
White	7,983	54,864	....	111	6,338	17,602	64,739	94,721	33,351	98,877	98,030	18,475	495,001
Shark	12,821	5,093	2,323	2,190	1,826	21,857	34,010	46,458	7,710	4,588	6,006	5,066	149,948
Sheepshead	5,096	5,095	838	2,894	115	310	....	2,333	....	841	....	2,045	19,567
Skate	245	286	....	440	1,281	903	1,285	2,084	111	....	630	153	7,418
Smelt	4,614	6,832	9,937	13,003	3,109	8,161	2,766	....	265	4,240	4,485	10,834	68,246
Sole—Unclassified	161	....	....	....	....	406	....	170	115	....	....	....	852
Swordfish	1,301	....	....	....	....	....	....	549	2,332	13,327	10,201	11,261	38,971
Flyingfish	....	....	....	....	....	....	8,736	14,203	980	450	....	....	24,369
Tuna—Yellowfin	....	....	....	....	....	1,125	....	....	....	....	439	....	1,564
Albacore	6,072	....	....	....	....	....	....	863	50,802	21,483	16,911	25,274	121,405
Bonito	1,510	1,644	920	1,773	....	183	4,665	6,246	....	2,889	2,414	5,264	26,908
Bluefin	....	....	....	174,955	....	1,350	622	92,714	96,935	93,032	66,219	....	525,827
Skipjack	....	....	....	....	....	....	....	....	....	....	170	....	170
Whitefish	371	793	577	493	....	....	....	1,100	....	....	....	580	3,914
Yellowtail	6,739	46,848	1,223	22,406	31,531	24,830	6,190	10,574	20,967	9,943	7,473	21,524	210,248
Abalone	5,475	3,650	3,950	....	3,075	8,550	6,025	9,875	7,525	8,033	6,875	4,375	67,408
Octopus	....	....	....	....	....	159	....	....	....	....	....	....	159
Spiny Lobster	38,188	33,486	14,829	13,340	5,359	....	....	....	....	....	....	85,101	190,303
Livers	....	346	....	365	1,490	2,070	711	1,606	....	107	....	....	6,695
Squid	....	11,080	11,325	2,810	4,297	....	....	....	....	....	....	....	29,512
Miscellaneous	5,584	5,123	4,677	5,783	6,955	5,427	7,433	6,776	2,619	3,927	3,836	3,332	61,472
Total	1,774,321	901,087	343,359	661,283	581,230	677,473	523,757	819,778	574,421	731,865	682,836	726,745	8,998,155

WASHINGTON TRAWL LANDINGS — 1930 TO 1949

(Data cover foodfish only.)

Year	Sole and Flounders	"Cod"	Lingcod	Sablefish	Rockfish	Miscellaneous	TOTAL	Year
1930	339,932	26,318	....	....	24	32,419	398,693	1930
1931	323,064	30,269	....	....	....	3,674	357,007	1931
1932	281,302	46,512	....	....	1,000	1,374	330,188	1932
1933	296,517	59,965	....	....	....	5,200	361,682	1933
1934	247,684	25,405	13,454	....	8,313	6,116	300,972	1934
1935	2,575,998	185,786	285,759	....	63,284	23,743	3,134,570	1935
1936	4,791,994	406,361	237,229	....	81,301	22,650	5,539,535	1936
1937	4,265,491	441,130	235,431	....	72,640	14,919	5,029,611	1937
1938	5,036,852	456,814	286,439	....	107,163	21,952	5,909,220	1938
1939	4,659,122	354,805	197,982	....	112,395	231,614	5,555,918	1939
1940	5,917,096	518,705	247,007	....	248,711	946,788	7,878,307	1940
1941	7,977,576	457,253	199,128	....	93,286	582,295	9,309,538	1941
1942	9,575,018	1,172,811	3,845,055	118,406	1,034,417	717,279	16,462,986	1942
1943	13,250,936	996,963	4,859,693	778,451	4,464,702	1,015,394	25,366,139	1943
1944	7,806,664	623,151	4,254,298	1,429,682	5,132,233	270,898	19,516,926	1944
1945	9,185,003	2,417,053	4,177,839	529,507	16,093,712	211,068	32,614,182	1945
1946	9,709,656	3,701,647	3,193,436	628,756	10,094,207	93,705	27,421,407	1946
1947	9,901,605	3,082,112	3,230,007	266,828	6,298,452	58,054	22,837,958	1947
1948	12,914,727	5,258,603	4,513,062	305,336	9,723,000	890,735	33,605,463	1948
1949	9,643,832	1,641,897	2,684,931	426,326	5,210,982	48,641	19,656,609	1949

Kayler-Dahl Fish Co. This pack of shrimp is frozen in the "Traypak" foil boxes manufactured by Reynolds Metals Co., with the cover attached by means of a crimped closure.

New Plant and New Package

New England Fish Co. of Oregon largely re-arranged and re-equipped its plant at Astoria to permit it to enter the consumer-package field in an aggressive way and with plant

1949—OREGON OCEAN FISH—1949

(Salmon, Tuna and Pilchard Not Included)

Species	October, 1948	November, 1948	December, 1948	January, 1949	February	March	April	May	June	July	August	September	Total
	Pounds	Pounds	Pounds	Pounds	Pounds	Pounds	Pounds	Pounds	Pounds	Pounds	Pounds	Pounds	**Pounds**
Flounder	114,002	17,759	52,029	16,139	12,567	12,880	10,760	68,685	36,105	7,445	2,567	29,204	**380,142**
Halibut	7,885	2,054						345,874	61,947	2,568	20,355	12,262	**452,945**
Cod													
Ling	51,998	22,432	23,888	92,713	15,775	88,349	96,236	54,625	59,926	65,472	105,160	53,168	**729,742**
Sable	63,207	23,009	21	397		67	584	14,115	24,967	35,957	84,543	128,171	**375,038**
Rock	225,947	109,717	112,942	565,335	43,798	244,729							**1,302,468**
True Cod	607	469	328	350		103	93	1,424	2,108	206		230	**5,918**
Rockfish													
Black Rock	21,412	5,236	30,602	93,863	1,550	83,272	23,143	16,276	4,488	37,306		218	**317,366**
Red Rock	17,882	6,404	23,675	125,077	2,332	40,742	398,618	155,367	129,518	183,593	56,554	161,042	**1,300,804**
Misc.				200		2,054			92,774		108,954		**203,982**
Sole													
Petrale	105,951	28,277	17,796	68,056	8,735	106,556	262,672	70,819	145,579	270,596	228,038	185,709	**1,498,784**
Fringe	12,336	9,908	835	2,729	4,200	235	59						**30,302**
Point or English	156,696	20,285	46,652	135,052	12,757	63,947	94,627	53,948	84,471	103,416	247,266	158,452	**1,177,569**
Rex	23,251		4,946	2,000		10,084	11,477	7,251	29,263	108,541	45,727	4,822	**247,362**
Dover	314,693	3,387				7,419	590	65,419	161,483	574,265	1,093,873	863,333	**3,084,462**
Turbot	142,431			382		1,455	4,281			144,684	747,145	449,695	**1,490,073**
Misc.		1,465	35	5,200		3,833		1,722		48,031	3	3,190	**63,479**
Carp					151			3				412	**566**
Red Snapper	19,132	3,878	25,897	68,898	248	28,883	112,116	40,243	19,258	25,456	6,991	1,511	**352,511**
Perch	60	274			1,206	918	916	2,850	949	810		76	**8,059**
Herring					4,543	31,950				662	1,800		**38,955**
Capron	48					1,209	290	19					**1,566**
Pilchard	400									2,483	7,141		**10,024**
Sea Bass	27	94					13		824	1,158	34	276	**2,426**
Hake	1,582								8,265				**9,847**
Scrap	71,573	128,129	228,344	61,904	215,938	47,652	673,562	155,240	85,377	52,910	16,466	12,009	**1,749,104**
Rosefish								87,266	27,064	133,134	388,152	325,268	**960,884**
Dogfish	17	34,000	52	15,550	8,770	2,728	216,425		171,692	116,100		5	**565,339**
Misc.								4		241			**245**
Sand Dab			500	2,451		5,106							**8,057**
Total Fish	**1,351,137**	**416,777**	**568,542**	**1,256,296**	**332,570**	**784,171**	**1,906,462**	**1,141,150**	**1,146,058**	**1,915,034**	**3,160,769**	**2,389,053**	**16,368,019**

JOHN NAGLE CO.

Receivers of

FRESH AND FROZEN FISH

BOSTON, MASSACHUSETTS

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efficiency of an order designed to permit it to compete with foreign imports.

The company adopted a long, flat package designed to fit in an ice-cube tray and installed a "Knapp-Wrap" machine for high-speed wrapping of the packages in beautifully rotogravured waxed wrappings. The packages were subsequently quick-frozen in the company's battery of four Birdseye frosters. The company brand for the package products is its famous "Belleanna" Brand, Nefco Chillets.

1949—Miscellaneous Fish Products Received by Seattle Wholesale Dealers—1949

Product and Unit	Dec. 1948	Jan.1949	February	March	April	May	June	July	August	September	October	November	Total
CURED FISH:													
Codfish, Salted, B. C. Import, Lbs.	31,000	2,250	1,500								10,500		45,250
Codfish, Fillets, Smoked, B. C., Lbs.			6,600	15,850	43,210	5,775	11,475	6,500	6,750	12,500	8,250	23,250	140,160
Codfish, Smoked, Nova Scotia								30,000					30,000
Finnan Haddie, B. C. Import, Lbs.	1,950		1,300	6,375	4,500	2,625	1,875	1,125	450	375	3,750	5,625	29,950
Herring, Salted, B. C. Import, Lbs.											206		206
Herring, Kippered, B. C., Lbs.	6,430	1,870	3,250	1,820	850						970	6,110	21,300
Herring, Kippered, Norway, Lbs.	24,000												24,000
Herring, Salted, East Coast, Bbls.						135							135
Mackerel, Salted, B. C., Lbs.			14,500										14,500
Sablefish, Salted, Alaska, Bbls.		32					119	13	105	17	60	23	369
Salmon, Mild-Cured, Alaska, Tcs.		22		3	5	130	1,200	1,042	943	459	48	100	3,952
Salmon, Mild-Cured, B. C., Tcs.							2	125	45		60		232
Salmon, Salted, Alaska, Bbls.				3	5		130	15	74	111	144		482
Salmon, Kippered, B. C. Import, Lbs.	2,500		990	1,255	610	570	365	250	100	1,171			7,811
Unclassified, B. C.			46,323										46,323
Unclassified, Dried, Japan, Lbs.							500						500
Miscellaneous:													
Herring Meal, Alaska, Tons							3		617	954	289	197	2,060
Herring Meal, B. C. Import, Tons	930	630	1,509	1,870	480					23		190	5,632
Unclassified Meal, Alaska, Tons			803						90	701			1,594
Other Meals, B. C. Import, Tons											507	120	627
Herring Oil, Alaska, Gals.									160,561	126,178	49,000	9,307	345,046
Unclassified Oil, Alaska, Gals.	10,899					140		2,494	13,498	260	32,605		59,896
Unclassified Oil, Import, Gals.		35,930			45,995	13,568	23,171	35,803	11,694	8,818	51,826	56,536	283,341
FISH LIVERS:													
Grayfish, Local, Lbs.	191,886	100,778	75,066	165,263	185,824	475,169	216,239	87,080	37,704	42,656	68,674	80,708	1,727,047
Grayfish, Alaska, Lbs.		825	1,116	1,862	11,217	20,605	3,827	5,947	2,580	4,166	3,785	27,818	83,748
Halibut, Viscera, Alaska, Lbs.		72,397	66,178			164,967	296,149	158,029	18,341	73,960	786	15,768	866,575
Sablefish, Viscera, Alaska, Lbs.		106,311	30,485		140	974	2,023	12,169	15,414	65,613	4,948	34,987	273,064
Lingcod, Local, Lbs.	22,168	18,779	10,471	6,989	8,709	10,163	19,783	16,029	28,390	20,396	17,672	13,461	193,010
Soupfin Shark, Local, Lbs.	4,835	20,256	24,745	25,239	5,359	10,473	29,025	45,337	21,710	14,062	10,441	21,399	232,881
Miscellaneous, Local, Lbs.	160,079	151,386	66,348	168,219	102,175	224,558	450,251	377,233	252,873	309,994	263,264	65,580	2,591,960
Miscellaneous, Alaska, Lbs.		60,952	42,772		2,459	29,084	65,032	46,903	16,020	11,192	5,053	88,052	367,519

OREGON OCEAN FISH 1942-1949

Year	SOLE					Halibut	Lingcod	Sablefish	Rockfish	Shark	Miscel.	Total
	Petrale	English	Dover	Turbot	Miscel.							
1942	3,745,146	227,793	2,308,508	13,046	2,101,706	765,541	988,211	623,776	1,715,952	1,255,619	464,815	**14,210,113**
1943	3,805,094	898,639	6,431,666	2,831,013	3,290,215	844,480	30,587	1,117,081	7,009,702	2,854,787	622,104	**29,735,368**
1944	2,019,143	1,057,701	1,593,469	700,147	1,133,372	651,255	1,208,051	568,370	11,266,874	546,817	585,232	**21,330,431**
1945	1,574,143	1,096,601	2,704,216	168,811	1,262,795	613,215	1,015,215	418,233	17,365,866	99,761	342,207	**26,661,063**
1946	2,984,092	3,950,609	3,197,988	297,708	1,411,975	816,854	1,150,803	1,016,470	10,671,012	57,683	779,793	**26,334,987**
1947	1,573,495	1,999,970	1,897,309	694,260	738,430	632,312	675,201	694,023	6,053,961	86,617	3,092,553	**18,138,131**
1948	2,561,491	3,265,155	2,642,050	1,111,165	271,107	471,218	757,254	471,076	3,822,387	370,560	3,822,483	**19,565,946**
1949	1,498,784	1,177,569	3,084,462	1,490,073	341,143	452,945	729,742	375,038	1,822,152	565,339	4,830,772	**16,368,019**

NOTE: Annual totals given are for 12 months ending with September of the year shown.

SHAD

Pacific shad canning in 1949 held close to the pattern of previous years, with a few thousand cases of shad packed in talls and a fairly steady production of shad roe in half-flats and half-ovals.

California again dropped out of the production picture, after returning in 1948 with one cannery operating on shad.

Shad canning appears to have settled to the status of meeting the needs of a limited and specialized market; while shad roe in cans continues to command a steady outlet up to a certain point, although it is evident that packaged, frozen shad roe has come to absorb a large part of the rather limited supply available.

Fresh market demand for whole shad apparently has been absorbing the entire catch of shad from the Sacramento and San Joaquin Rivers of California, although carload shipments of fresh shad to the markets of the Atlantic Coast have not been possible to the extent of former years, evidently due to development of a supply of shad from the south Atlantic fisheries.

1949—Pacific Canned Shad Pack—1949

Company	Location	Shad 1-lb. Talls	Shad ½-lb. Flats (8 doz.)	Shad Roe ½-lb. Flats and Ovals (4 doz.)
Barbey Packing Corporation	Astoria, Ore.	156	......	410
Chinook Packing Co.	Chinook, Wash.	... .	120	32
Columbia River Packers Association	Astoria, Ore.	9,626	......	3,905
Columbia River Salmon Co.	Astoria, Ore.	....	......	26
Paragon Packing Co.	Astoria, Ore.	....	......	224
Point Adams Packing Co.	Hammond, Ore.	1,811	......	980
Union Fishermen's Cooperative Packing Co.	Astoria, Ore.	589	......	249
Totals		**13,338**	**120**	**5,826**

Canned Shad and Shad Roe -- 1920 to 1949

YEAR	OREGON-WASHINGTON SHAD (full cases)	OREGON-WASHINGTON SHAD ROE (4-Doz.½'s)	CALIFORNIA SHAD (full cases)	CALIFORNIA SHAD ROE (4-Doz.½'s)	Total, Pacific Coast SHAD (full cases)	Total, Pacific Coast SHAD ROE (4-Doz.½'s)	YEAR
1920	8,251	892	3,936	908	**12,187**	**1,800**	1920
1921	871	6	....	....	**871**	**6**	1921
1922	1,410	174	....	....	**1,410**	**174**	1922
1923	2,128	826	....	....	**2,128**	**826**	1923
1924	4,478	300	3,000	....	**7,478**	**300**	1924
1925	6,120	1,672	6,564	4,320	**12,684**	**5,992**	1925
1926	14,457	1,416	....	....	**14,457**	**1,416**	1926
1927	16,081	830	8,787	....	**24,868**	**830**	1927
1928	17,560	3,264	7,475	2,884	**25,035**	**6,148**	1928
1929	15,944	2,630	7,005	2,612	**22,949**	**7,242**	1929
1930	10,783	1,724	1,792	2,414	**12,575**	**6,138**	1930
1931	757	2,156	....	3,442	**757**	**5 598**	1931
1932	361	1,614	....	1,714	**361**	**4,328**	1932
1933	1,020	976	....	1,314	**1,020**	**2,290**	1933
1934	8,098	3,302	....	1,150	**8,098**	**4,452**	1934
1935	5,495	2,060	5,068	2,270	**10,563**	**4,330**	1935
1936	4,131	2,004	15,124	5,178	**19,255**	**7,182**	1936
1937	3,380	1,084	4,677	1,684	**8,057**	**2 768**	1937
1938	3,194	1,186	7,655	4,102	**10,849**	**5,288**	1938
1939	8,472	2,963	9,193	3,772	**17,665**	**6,735**	1939
1940	6,234	4,453	12,187	3,756	**18,421**	**8,209**	1940
1941	4,269	3,470	....	100	**4,269**	**3,570**	1941
1942	7,713	5,137	20,058	4,887	**27,770**	**10,021**	1942
1943	2,249	3,901	11,516	6,252	**13,765**	**10,153**	1943
1944	3,806	4,556	12,854	4,171	**16,660**	**8,727**	1944
1945	1,810	4,265	....	536	**1,810**	**4,801**	1945
1946	9,629	6,589	....	....	**9,629**	**6,589**	1946
1947	17,892	7,860	....	....	**17,892**	**7,860**	1947
1948	10,537	4,403	828	199	**11,365**	**4,602**	1948
1949	13,458	5,826	....	....	**13,458**	**5,826**	1949

Capt. Earl McCarty's *Sunward* was one of those Eureka pioneers of 1949 who vastly extended Pacific trawling grounds by sending their gear successfully to depth never before fished on this coast.

CRAB

Although barely half the all-time record production of 1948, Pacific crab canning in 1949 ranked third in the history of the business, its 99,000 cases exceeding the production of any year prior to 1947.

Big production in 1948 resulted primarily from unusual size and abundance of crabs, and 1949 operations rank above normal.

1950 opened without reserve stocks, and with price firm and demand strong.

From the all-time-high production of canned crab in 1948, packing in 1949 dropped sharply, reaching only 99,352 cases, as compared with the 1948 record pack of 187,420 cases.

All districts declined sharply, but production in Washington slid off the most of all, dropping from 104,362 cases to 55,620.

Alaska production of Pacific canned crab in 1949 ran almost exactly the same as the year before, when 17,622 cases of the territory's total actually was a non-recurring pack of King crab produced by the experimental floater "Pacific Explorer."

The decline in canned crab production resulted from an unexplained scarcity of crabs in the spring of 1949, although it should also be noted in this connection that the abundance of crabs—and their size—in 1948 was exceptionally large. Thus it may be said that 1948 production was well above normal, and that the pack of 1949, while far below the previous year and slightly below 1947, still was far above average.

As a matter of fact, with the exception of the 187,000 cases in 1948 and the 106,000 cases in 1947, the 99,000-case pack of 1949 was better than the Pacific Northwest has produced in any year.

Going into 1950, the market price of Pacific canned crab was firm at $23, with no stocks on hand and packers making pro rated deliveries against orders as fast as the goods were being packed.

Crab Price to Fishermen In 1949 Is 9c Per Pound

There was a good deal of jockeying, and some lost fishing time early in 1949 as Pacific Northwest fisher-

1949—PACIFIC CANNED CRAB—1949

Company	Cannery Location	Cases 48 Halves Flat
ALASKA		
Fox, Gorman,	Schultz Cove	500
Parks Co., H. M.	Cordova	7,752
Tapley Packing Co.	Cordova	1,180
Wood, O. H.,	Hoonah	25
Total Alaska		9,457
WASHINGTON		
Burk Packing Co., P. J.	Bellingham	305
Chinook Packing Co.	Chinook	2,234
Dungeness Crab, Inc.	Westport	4,514
Haines Oyster Co.	Bay Center	3,200
Kaakinen Fish Co.	Westport	3,212
Nelson Crab & Oyster Co.	Tokeland	9,500
Olympic Seafoods	La Push	(a) 900
Sea Spray Canning Co.	Bay Center	1,000
South Bend Oyster Co.	South Bend	20,000
Washington Fish Co.	Aberdeen	1,206
West Coast Fish Co.	Aberdeen	3,350
Whiz Fish Products Co.	La Conner	1,664
	Hoquiam	4,535
Total Washington		55,620
OREGON		
Columbia River Packers Association	Astoria	22,175
Del Mar Canning Co.	Warrenton	594
Hallmark Fisheries	Coos Bay	2,650
New England Fish Co.	Newport	297
Point Adams Packing Co.	Hammond	8,981
Yaquina Bay Fish Co.	Newport	758
Total Oregon		35,455
GRAND TOTAL		100 532

(a) Canned in 5-lb. cans, counted here on the basis of 4.8 such cans per case.

BARBARA LEE

Capt. Roy Furfiord's *Barbara Lee* is a notable example of the specialized crab-fishing vessel. Built in 1949 she is equipped so that her entire hold can be used as a live box. Power is a 200-hp. Cummins diesel engine.

men and crab buyers sought a basis of price agreement.

Buying price at the first of the year was $2.25 per dozen, ocean run, at Westport, but by the latter part of January it was evident that this figure was weak and would hardly stand up under heavier landings as the season progressed.

Effective Feb. 1, buyers announced reduction in the price to $2.25. This price produced a tie-up of most of the fleet.

Further south, on the Columbia River, the crabbers were operating consistently on the basis of 9c per lb. Down the Oregon Coast further the price during periods of flush fishing was 8c per lb., where a year before it was 10c.

Washington buyers contended that the $2.25 per dozen price at that time of year was equivalent to the Oregon price of 9c.

Buying on Weight Basis Adopted at Grays Harbor

After considerable fishing time had been lost by the crab fleet operating out of Grays Harbor and Willapa Harbor, settlement was finally reached on the basis of 9c per lb. Although buying crabs by the pound had been an accepted practice on the Columbia River and down the Oregon Coast for years, it never before had been applied in Washington.

This settlement enabled the entire fleet to get to fishing in March, and at that time the 9c price being paid was said to return the fishermen from $2.38 to $2.55 per dozen, depending somewhat upon where the crabs were taken, and also upon how long the pot had been fished.

Spring Crab Production Light

Crab fishing in the early spring of 1949 was on the light side, making a sharp contrast with the heavy production of a year before.

Although the weather during the first two or three months of the year was very cold, this did not interfere with fishing — but may possibly have had an effect upon the activity of the crabs. In any event, the catch during this period was light, when consideration is given to the amount of gear which was run.

At the end of March, estimates were that the Washington coast catch was not much more than half as great as in the first quarter of 1948.

Crab Fishermen Organized Cooperative Packing Program

One interesting development to arise from the price difficulty on Grays Harbor and Willapa Harbor during the early part of 1949 was the organization of the Westport Crab Producers Cooperative, organized by 29 fishermen operating eight crab boats. The cooperative entered into a contract with the South Bend Oyster Co. to pack its crabs, which were delivered to the company upon payment of 80% of the going price at Westport.

Subsequent profits, after packing

PACIFIC CANNED CRAB — 1931 TO 1949

(SHOWN IN STANDARD CASES OF 48 HALF-POUND CANS)

Year	Alaska	Washington	Oregon	California	American Total		British Columbia	North American Total	Year
					Cases	Value			
1949	8,277	55,620	35,455	....	99,352	$2,185,096	*	99,352	1949
1948	26,076	104,362	56,982	3,500	187,420	4,264,622	3,500	190,920	1948
1947	10,158	54,756	34,582	6,624	106,120	2,037,904	2,481	108,601	1947
1946	15,792	19,263	29,106	15,194	79,356	2,271,968	1,455	80,811	1946
1945	15,760	9,070	896	....	25,726	398,898	....	25,726	1945
1944	13,376	16,524	10,968	....	40,868	653,888	385	41,253	1944
1943	9,386	18,332	20,874	....	48,592	782,173	....	48,592	1943
1942	7,766	26,052	45,338	....	79,156	1,266,496	885	80,041	1942
1941	11,126	13,232	13,346	....	37,704	311,822	3,386	41,090	1941
1940	12,828	8,634	3,792	....	25,254	178,021	3,794	29,048	1940
1939	11,978	2,716	8,406	....	23,100	184,254	2,049	25,149	1939
1938	....	....	....	....	27,016	258,375	2,157	29,173	1938
1937	....	....	....	....	27,394	269,699	1,546	28,940	1937
1936	....	....	....	....	14,758	124,925	....	14,758	1936
1935	....	....	....	....	13,840	106,832	....	13,840	1935
1934	....	....	....	....	22,869	184,052	....	22,869	1934
1933	....	....	....	....	17,564	134,330	....	17,564	1933
1932	....	....	....	....	9,314	73,112	....	9,314	1932
1931	....	....	....	....	263	2,104	....	263	1931

* Not available.

and selling costs, were to be prorated among the cooperative members on the basis of their deliveries.

Clams for Crab Bait Present Real Problem

A short quota for razor clams presented a real problem in the matter of securing an adequate supply of clams for crab bait in 1949, and the price for such clams rose to 27c per pound on the Washington beaches.

Operators sought to cope with the high price of clams by bringing razor clams from Cordova and Seldovia, Alaska, as well as from Massett, B. C. These clams were said to cost from 19 to 22c per lb., laid down frozen in Seattle.

New Crab Boat Sets Pace With Live-Box Hold

One of the interesting technical developments of Pacific Northwest crab fishing in 1949 was found in a new vessel, Capt. Roy Furfiord's *Barbara Lee,* which was commissioned in the spring. She was distinctive in that her entire hold was fitted for use as a live-box for crab fishing. The hold is kept partially full of seawater, constantly circulated by a pump, and the crabs are placed in the water-filled hold as they are removed from the pots. Thus they reach the cannery in the freshest condition possible.

Fresh and Frozen Demand Cuts Into Crab Canning

Early in the summer of 1949 the fresh market for crabs and crab meat sharpened its demand and diverted a substantial part of the catch from the canneries in the final month of the active canning season. At the same time Grays Harbor buyers raised the price from 9c to 10c per lb., virtually closing down the canneries for the balance of the season.

An exception to this condition prevailed on the Oregon coast, where June crab canning was active at Newport.

TRINIDAD JUMBOS

One of California's choice sea foods—the jumbo crab—is now being shipped whole all over the United States by Hallmark Fisheries, Eureka. They pack the crabs under the trade name of "Trinidad Jumbos." Each crab is perfect, with all its legs, no cracks in the shell, cooked and scrubbed clean No crab weighing under 2½ lbs. is packed. The crabs are wrapped individually in cellophane, sealed with Scotch tape, and packed in Fibreboard Products, Inc. V3 shipping cases, 12 crabs to the case. The entire case full of crabs is then frozen. The product has met with enthusiastic consumer acceptance, according to Earl Hallmark, head of Hallmark Fisheries.

Crab Seasons Are Altered

Both Oregon and California made substantial changes in their crab fishing seasons during 1949.

The California legislature provided for the uniform opening of crab seasons in the San Francisco and Northern California districts, setting Nov. 15 as the opening date. Previously the season in Northern California opened later. This led to concentration of fishing by the entire fleet at San Francisco, often producing a disastrous market collapse.

Washington Crab Landings by Districts

Year	Puget Sound	Grays Harbor	Willapa Harbor	Columbia River	Total
	Pounds①	Pounds②	Pounds②	Pounds②	Pounds
1936	441,892	451,890	865,194	....	1,758,976
1937	500,104	643,234	1,441,352	3,428	2,588,113
1938	521,180	387,728	1,831,716	....	2,740,624
1939	441,122	620,004	2,153,496	....	3,214,622
1940	428,692	1,134,182	3,341,754	....	4,904,623
1941	514,184	1,293,222	3,968,152	206,984	5,982,542
1942	989,186	2,262,696	2,134,818	249,304	5,636,004
1943	1,267,024	2,732,090	1,052,550	56,660	5,108,324
1944	1,790,118	2,622,316	1,529,196	83,326	6,024,956
1945	1,993,398	1,961,978	1,439,204	4,838	5,399,418
1946	2,284,810	3,674,536	2,022,004	121,335	8,102,685
1947	1,512,808	6,599,380	3,822,288	38,184	11,972,660
1948	1,933,426	15,923,640	4,241,256	614,184	22,712,506
1949	1,318,926	6,215,862	2,835,720	854,928	11,225,436

① Conversion: 22 lbs. per doz. ② Conversion: 24 lbs. per doz.

Oregon previously had had flexible crab fishing seasons by which the fish commission opened and closed fishing on the basis of the percentage of soft-shelled crabs observed in the catches. Data secured in the course of these observations made it possible to establish fixed season as follows: Columbia River south to Tillamook Head, Dec. 15 to Sept. 15; Tillamook Head south to California line, Nov. 15 to Aug. 15.

1950 Crab Canning Starts Before the End of 1949

It may be paradoxical to say that 1950 crab canning started before the close of the year 1949, but the fact is that the active demand for canned crab, with no carryover whatever, led some operators to initiate canning about the middle of November.

Production between then and the end of 1949 was nominal, and was snapped up rapidly. Most of the canning was done in Washington and Oregon, as the California fresh market served to absorb the winter offerings.

The California season started with a price of 11c per pound at Eureka and 12c at San Francisco. On the mid-Oregon coast the initial price of crabs when the season opened Nov. 15 was 8c per lb., the same as the previous spring.

Fishing vessels in port at Eureka, Calif., one of the front-ranking crab ports of the Pacific Coast, noted for the large size of the crabs produced. Eureka is among the fastest-growing of the Coast's smaller fishery centers.

Initial offering of the crabs canned in November-December, 1949, was at $23 per case of halves.

King Crab Operations Continue On Rather Modest Scale in '49

Three vessels again were engaged in the Alaskan King crab industry in the Bering Sea and along the Pacific side of the Alaska Peninsula in 1949—the trawlers *Deep Sea*, *Chirikof* and *Lynn Ann*.

These were the same craft as were active the previous year. With longer experience in both production and marketing of King crab, they were able to extend their season substantially and it was evident that 1949 operations were more extensive than these vessels have undertaken in the past.

The *Chirikof* and *Lynn Ann* got away to the North quite early, clearing Seattle in March. Most of their production of frozen crab meat was shipped down by steamer from time to time.

During the summer months the *Deep Sea* took a Fish and Wildlife charter for exploratory fishing on a cruise through Bering Sea north as far as Nome. It was significant that no substantial catches of King crabs were made in the northern part of the area explored, and that crabs in numbers were taken only in the southerly section, and generally quite close to shore.

1949—Shellfish Receipts by Seattle Wholesale Dealers—1949

Shellfish	Unit	Dec. 1948 Number	Jan. 1949 Number	Feb. Number	March Number	April Number	May Number	June Number	July Number	Aug. Number	Sept. Number	Oct. Number	Nov. Number	Total Number
Clams, Butter	Lbs.	16,872	17,242	10,195	12,257	200	......	......	......	......	......	8,170	20,711	85,647
Little Neck	Lbs.	72,923	62,051	59,719	110,448	20,084	......	......	......	......	......	75,835	97,738	498,798
Razor	Lbs.	......	100	......	60	......	......	......	850	1,649	......	......	......	2,659
B. C. Import	Lbs.	13,500	31,390	49,005	34,570	209,720	235,481	74,515	53,512	66,530	20,510	4,615	10,880	804,228
Alaska Frozen	Lbs.	......	......	......	......	......	......	15,105	......	......	......	......	......	15,105
Clammeat	Gals	......	......	......	......	......	......	......	......	......	......	......	27	27
Clammeat, B. C. Import	Lbs.	2,810*	14,026	5,070	5,302	3,235	......	6,534	2,070	720	200	250	......	40,217
Clammeat, Alaska Frozen	Lbs.	......	......	......	......	......	......	13,734	......	......	......	......	......	13,734
Crabs, Dungeness	Doz.	4,347	7,139	3,362	6,766	6,101	7,456	4,196	3,710	1,486	24	6,003	4,704	55,294
Crabs, B. C. Import	Lbs.	......	......	......	......	......	......	......	......	......	11,610	3,580	......	15,190
Crabmeat	Lbs.	320	4,228	3,902	4,909	16,145	20,116	5,797	21,566	11,993	1,560	22,397	3,620	116,553
Crabmeat, Alaska Frozen	Lbs.	......	3,920	......	......	300	64,640	17,500	47,863	8,250	16,170	145,380	26,310	330,333
Lobster, B. C.	Lbs.	......	......	......	......	......	......	......	......	......	......	......	7,275	7,275
Lobster, California	Lbs.	1,175	2,380	300	2,400	4,354	833	......	......	6,484	500	......	300	18,726
Mexico	Lbs.	......	......	......	......	24,451	15,080	11,580	3,240	......	......	......	......	54,351
Octopus	Lbs.	2,047	3,441	1,604	3,185	1,603	408	40	25	......	306	......	1,480	14,139
Oysters, shucked, Eastern	Gals.	75	72	60	75	35	10	......	......	......	30	40	105	502
Olympia	Gals.	183	92	105	190	233	154	24	26	46	101	197	219	1,570
Pacific	Gals.	24,984	16,269	21,211	25,165	18,217	10,779	7,459	5,824	7,038	12,483	19,113	28,811	197,353
Scallops, Bay	Gals.	145	73	23	23	50	57	98	110	18	130	104	86	1,017
Scallops, Nova Scotia	Lbs.	......	......	......	......	......	......	40,016	......	......	......	......	......	40,016
Japan	Lbs.	30,000	......	5,886	......	......	......	......	......	......	......	......	......	35,886
Shrimp, local	Lbs.	2,920	......	......	......	935	......	......	......	......	......	......	......	2,955
Gulf	Lbs.	......	......	......	......	......	......	200	......	......	......	......	......	200
Gulf frozen	Lbs.	......	......	1,000	......	......	......	......	......	......	......	......	......	1,000
Alaska frozen	Lbs.	......	66,635	43,962	9,000	12,000	1,500	......	......	......	......	......	......	33,097
Mexico	Lbs.	8,000	......	......	......	......	......	10,000	......	......	3,300	1,690	4,000	29,990
Shrimp meat, Alaska	Lbs.	700	......	......	6,120	......	......	8,500	......	......	2,880	3,984	......	22,184
Alaska, frozen	Lbs.	......	......	......	......	2,220	43,596	61,849	61,632	56,624	......	21,705	60,399	308,025
Squid, local	Lbs.	......	615	......	......	......	......	......	......	......	......	......	......	615
California	Lbs.	2,020	......	......	10,160	4,020	34,790	......	1,000	1,000	1,000	......	......	53,990
Unclassified, B. C.	Lbs.	310	......	......	......	......	......	......	......	......	......	......	......	310
Lobster tails, So. Africa	Lbs.	620	......	......	......	......	......	......	......	......	......	......	......	620

* This figure given in gallons.

Pacific clam canning in 1949 continued on the rather limited scale which has become the normal scale in the course of recent years.

Razor clam volume continued curtailed by quotas in Alaska and Washington, the latter regional clam population necessitating reduced operations.

Hardshell clam production in Alaska, and to some extent in Washington, continues to be limited by technical considerations.

Clam canning on the Pacific in 1949 held close to the pattern of the previous year.

The drop in Washington production of razor clams as result of restricted quotas due to decline in the available clam population was just about offset by an increase in the pack in Alaska.

The Cordova district quota was filled handily under a special arrangement which permitted clam canning in the spring despite the fact that the canneries were closed during the early part of the salmon season by a strike.

A substantial pack, made at Kukak Bay, where clam canning through the years rises and ebbs as do the tides, served to run the territorial pack well above the level of the previous season.

Alaska hardshell clam canning once more remained little more than nominal as the industry and governmental researchers sought to overcome the technical problems which have exercised a restrictive influence on the business for a number of years.

Puget Sound hardshell clam canning continued in 1949 to depend very largely upon clam imports

1949—PACIFIC CANNED CLAM PACK—1949

				RAZOR CLAMS		
Company	Cannery Location	1-lb. Talls, 48s	No. 1 E.O., 48s	½-lb. Flats, 48s	No. 10, 6s	**Total Cases**
Alaska						
Aurora Packing Co.	Cordova	....	....	900	....	**900**
Halferty & Co., G. P.	Cordova	....	....	13,859	....	**13,859**
Mainland Fisheries, Inc.	Kukak Bay	19	....	5,290	....	**5,309**
Parks Co., H. M.	Cordova	....	....	17,425	....	**17,425**
Whiz Fish Products Co.	Cordova	....	....	4,620	....	**4,620**
Total Alaska		19	....	42,094	....	**42,103**
Washington						
Halferty & Co., G. P.	Aberdeen	....	....	3,521	....	**3,521**
Plumb & Edney	Copalis	....	....	710	....	**710**
Total Washington		....	....	4,231	....	**4,231**
Oregon						
Paragon Packing Co.	Astoria	....	....	251	....	**251**
British Columbia						
Massett Cooperative Association	Massett	....	....	923	....	**923**
GRAND TOTAL, Razor Clams		**19**	....	**47,499**	....	**47,518**
				HARDSHELL CLAMS		
Aurora Packing Co.	Cordova, Alaska	....	....	125	....	**125**
Bangor Packing Co.	Everett, Wash.	681	1,870	5,709	414	**8,674**
Bugge Canning Co.	Sequim, Wash.	705	(n)125	1,820	(a)1,125	**3,775**
Haines Oyster Co.	Seattle	....	....	4,000	....	**4,000**
Total Hardshell Clams		**1,386**	**1,995**	**11,654**	**1,539**	**16,574**
GRAND TOTAL, All Clams, All Districts		**1,405**	**1,995**	**59,153**	**1,539**	**64,092**

(a) Indicates 420 cases nectar. (n) All nectar.

Pacific Clam Pack in Previous Years

YEAR	Alaska, Cases	Puget Sound, Cases	Washington and Oregon Coast, Cases	British Columbia, Cases	Total
1913	....	5,800	63,240	....	69,040
1914	45	8,313	67,616	....	75,974
1915	....	9,457	78,472	....	87.929
1916	6,436	7,405	32,707	....	48,548
1917	49,923	17,680	20,946	5,500	94,049
1918	45,284	17,715	21,821	1,595	86,415
1919	26,083	7,668	44,843	....	78,594
1920	6,641	8,868	37,777	6,000	59,286
1921	1,600	8,327	64,407	6,000	80,334
1922	22,807	12,554	74,109	10,550	120,020
1923	52,901	12,819	38,038	11,026	114,784
1924	55,243	13,020	33,697	16,888	118,830
1925	69,522	10,719	35,579	16,318	132,138
1926	26,069	9,663	46,962	12,861	95,555
1927	16,969	11,677	84,065	13,070	125,781
1928	7,415	10,833	67,763	20,163	106,174

RAZOR CLAMS
(Basis 48 halves per case)

YEAR	Alaska	Washington and Oregon	British Columbia	Total
1929	28,270	63,526	13,050	104,846
1930	33,937	54,746	12,623	100,324
1931	43,460	53,412	8,658	105,440
1932	69,147	46,002	8,457	123,606
1933	38,213	38,772	....	76,985
1934	31,655	30,232	....	61,656
1935	34,864	53,057	....	87,921
1936	29,900	49,692	....	79,592
1937	29,044	20,373	....	49,417
1938	42,305	64,167	....	106,472
1939	35,258	60,205	....	95,463
1940	41,556	51,705	....	93,261
1941	22,736	27,629	....	50,365
1942	46,703	3,999	5,568	56,270
1943	48,692	1,732	5,821	56,275
1944	47,050	3,512	**	50,562
1945	43,476	38,152	**	81,628
1946	51,594	51,063	**	102,657
1947	24,726	42,970	....	67,696
1948	34,425	11,720	....	46,145
1949	42,103	4,482	923	47,518

HARD SHELL CLAMS
(Basis 48 halves per case)

YEAR	Alaska	Washington	*British Columbia	Total
1929	....	19,514	21,547	41,061
1930	600	27,735	18,738	46,073
1931	2,600	19,516	18,043	40,159
1932	76	13,264	9,201	22,541
1933	....	22,438	20,432	45,163
1934	....	25,880	11,630	37,510
1935	....	37,249	20,418	57,667
1936	....	45,222	25,158	70,380
1937	....	45,788	25,174	70,962
1938	....	40,007	44,310	84,317
1939	....	39,165	10,862	50,027
1940	....	35,250	7,151	42,402
1941	....	22,380	6,772	29,152
1942	....	10,972	12,240	23.212
1943	2,457	2,902	11,642	†34,001
1944	11,630	19,863	**	†71,024
1945	6,029	11,752	4,693	22,474
1946	14,441	20,574	23,867	98.826
1947	323	15,301	**	15.624
1948	92	12,600	....	12,692
1949	125	16,449	....	16,574

NOTE:—Segregation between razor and hardshell varieties not available prior to 1929. However, in those years most Alaska and all Washington-Oregon coast production was razor clams, while Puget Sound figures are all hardshell clams. Prior to 1929 figures are cases "as they run," but with halves counted 96 to the case.

*British Columbia figures for years 1932 to 1947 include some razor clams.

**British Columbia totals not available.

†Total includes clams canned in California from clam meats produced in Mexico, 17,000 cases in 1943, 39,531 cases in 1944, and 225,299 cases in 1945, and 39,944 cases canned in California in 1946.

from British Columbia for its raw material.

Washington razor clam canning was closely limited in 1949 by two factors: (1) a small quota established by the state as result of unsatisfactory condition of the clam stock; (2) the extreme competition of the crab bait buyers, who at times up-bid the price of raw razor clams to 27c per lb., a full dime above what the canners felt they could pay.

Quota is Cut to 650,000 Lbs.

The Washington Department of Fisheries established 650,000 lbs. as the state quota for 1949, with 100,000 lbs. allocated to Long Beach; 150,000 lbs. to Graylands; and 400,000 lbs. to Copalis Beach.

Reason given for the necessity of this reduction from 1,200,000 lbs. in the previous year's quota was an unsatisfactory condition of the stock, attributed to failure of the clams to propagate effectively in 1948, probably due to the influence of the enormous quantities of fresh water poured out by the Columbia River flood of that year.

The actual dig as the season developed passed the quota by about 50,000 lbs.

Crab Bait Competition Continues

Competition of the crab bait buyers for razor clams continued in 1949, and perhaps was sharpened over that of previous seasons by the low quota for the total dig.

Bait buyers boomed the price as high as 27c and 30c per lb. during the season; and large quantities of bait clams were shipped to Washington from British Columbia and Alaska.

Alaska Operations Start Late

Razor clam canning in Alaska in 1949 started at Cordova May 12, almost a month after the legal opening of the season April 15. The delay was due to the strike resulting from disagreement in the salmon canning industry.

Finally, as the clam season progressed, a special understanding was reached which permitted operation of the canneries on clams only. This permitted filling of the quota by the small number of companies operating well in advance of the end of the season.

Canning of hardshell clams on the Pacific Coast continued in 1949 to be limited by a number of factors, although operators were ready in that year to move a little more certainly, despite technical and merchandizing problems.

WASHINGTON RAZOR CLAM PRODUCTION

YEAR	COPALIS BEACH			GRAYLAND BEACH			LONG BEACH			KALALOCK ETC.	Total Catch All Beaches
	Number of Digs	Total Catch in Pounds	Catch per Dig Pounds	Number of Digs	Total Catch in Pounds	Catch per Dig Pounds	Number of Digs	Total Catch in Pounds	Catch per Dig Pounds	Total Catch Pounds	Pounds
1937	20,695	546,486	26.4	9,026	285,317	31.6	2,986	99,591	33.4	46,478	997,872
1938	37,064	1,366,441	36.9	20,765	882,619	42.5	9,410	364,383	38.7	44,670	2,650,355
1939	23,903	846,633	35.4	11,182	433,796	38.7	11,321	653,992	57.7	30,692	1,965,113
1940	25,343	604,338	23.8	13,582	347,435	25.5	25,115	1,159,123	46.1	14,886	2,125,782
1941	12,389	406,393	32.8	2,643	111,819	42.3	3,307	222,129	67.2	806	741,147
Reserve	7,965	347,693	43.7								
1942	5,088	143,148	28.1	814	26,283	32.3	3,941	174,104	44.2	*	343,535
1943	5,284	164,907	31.2	1,005	24,728	24.1	799	20,627	25.8	*	210,262
1944	8,485	409,374	48.2	2,705	105,425	38.9	2,651	108,030	40.7	*	622,829
1945	14,519	1,124,965	77.5	5,289	512,298	96.9	4,255	418.673	98.4	1,235	2,057,171
1946	12,387	922,516	74.5	10,548	461,773	43.8	11,109	663,776	59.8	*	2,048,065
1947	16,681	1,164,321	58.5	6,564	305,122	46.5	9,105	544,657	59.7	*	2,014,100
1948	18,263	687,612	37.6	6,642	249,869	37.6	8,489	268,862	31.8	50,350	1,256,693
1949	14,496	475,649	32.8	5,412	177,227	32.7	1,220	42,169	34.5	26,686	721,731

* The small amount dug is included with Copalis Beach.

OYSTERS

Demoralized during much of 1949 by the adverse effects of capricious standards for canned oysters, the Pacific oyster industry in that year canned 71,276 cases of canned oysters in spite of the handicaps which the standards imposed.

Future trend of Pacific oyster canning, as shaped by the standards, cannot yet be fully discerned.

Restricted by the provisions of the new standards for canned oysters as established by the federal Food and Drug Administration, and by court rulings resulting from contesting the standards, Pacific oyster canning in 1949 was curtailed to 71,276 standard cases, of which more than 50,000 cases were the product of a single company, which was able to operate under a court stay-of-execution denied to other operators.

Fortuitously, the condition of oysters in the fall of 1949 permitted canning earlier than ever before, and this in spite of the fact that the new standards will limit Pacific oyster canning to those periods when the oysters are in the very best of condition.

One tendency resulting from the standards has been toward packing Pacific canned oysters in a "buffet" tin, yielding the cut-out weight of 5 oz. traditional in the Pacific oyster pack. Approximately one-third of the 1948-49 pack was put up in this tin; and indications for 1949-50 canning are that the "buffet" tin will account for about half of the production.

Smoked Oysters Become Important

Another immediate result of the capricious standards has been to stimulate operators to the development of products which can be packed at times of the season when compliance with the standards for canned oysters is not possible.

Smoked oysters are among the products whose development has been fostered by the standards. While they have been produced to some extent for a number of years, the current trend is marked by improved quality and uniformity.

The output of smoked oysters in the 1948-49 season was 11,511 cases, largely packed in 3½-oz. glass jars.

Oyster industry of the Pacific Northwest in 1949 was concerned almost as much with lawsuits and standards as it was with oysters.

Attack on the standards set-up by the Food and Drug Administration was carried all the way to the United States Supreme Court, where the attempt was lost when the court declined to review the decision of the appellate court.

As the standards were sustained, they require a drained weight of 6½ oz. of oysters to the No. 1 E. O. tin.

Packers find that it is necessary to put 8½ oz. of blanched Pacific Oysters into a can in order to get this cut-out weight. This is said to be physically impossible except at the comparatively short period of the oyster season when the oysters are at their heaviest.

Early Effects of Standards

Effects of the standards decision on the Pacific oyster industry were not fully evident by the end of 1949, and perhaps it would require several years before they could be completely enumerated.

However, among the effects which became promptly apparent were:

1. Restriction of Pacific oyster canning to a period of about two months in the average season; although canning could continue over a longer term in years when the oysters reached prime conditions earlier than usual.

2. Trend toward the use of the "buffet" tin for Pacific canned oysters, with the 5 oz. cut-out weight

PACIFIC CANNED OYSTERS

Season of 1948-49

Company	Cannery Location	Cases 48 No. 1, E. O. 10-oz.	Cases 48 Buffet 8-oz.	Cases 48 No. 1 Tall 16-oz.	Total Standard Cases 48, No. 1, E.O.
Bendiksen Co., E. H.	South Bend, Wash.	12,198			12,198
Northern Oyster Co.	Oysterville, Wash.	950			950
Union Fishermens Cooperative Packing Co.	Astoria, Ore.	3,009			3,009
Wiegardt Bros.	Ocean Park, Wash.	(a) 2,895			(a) 2,895
Willapoint Oysters, Inc.	Bay Center, South Bend	29,690	23,028	2,570	52,224
Total 1948-49 Season		**48,742**	**23,028**	**2,570**	**71,276**

Pacific Canned Oysters, equivalent of standard cases of 48 No. 1 E. O. tins, packed in—

Year	Cases	Year	Cases	Year	Cases
1948	83,489	1942	72,315	1936	118,853
1947	57,205	1941	178,445	1935	88,062
1946	89,050	1940	148,870	1934	68,323
1945	3,184	1939	112,549	1933	32,315
1944	none	1938	111,348	1932	12,233
1943	583	1937	110,872	1931	7,930

NOTE—Figures for current production cover 1948-49 oyster season. Historical figures are for calendar years and have been corrected from official sources.

(a) Also packed 2,117 cases 48 No. 1 E. O., oyster stew.

1949 — Pacific Smoked Oyster Pack — 1949

Company	Location	Cases in Glass 2 doz. 3½-oz.	Cases in Tin 4 doz. ¼-lb.	Total Cases
Bendiksen Co., E. H.	Nahcotta, Wash.	10,810	......	**10,810**
Northern Oyster Co.	Oysterville, Wash.	....	250	**250**
Wiegardt Bros.	Ocean Park, Wash.	451	......	**451**
TOTALS		**11,261**	**250**	**11,511**

which has become traditional with these oysters.

3. Reduction of about 50c per gal. in the price paid the grower and shucker for raw oysters as partially enabling the packer to meet the requirements of the new standards.

4. Development by oyster packers of products other than canned oysters, such as smoked oysters, smoked oyster spread, and oyster stew. This latter item in particular is expected by some operators eventually to assume large importance.

Adverse Ruling Held Invalid

One phase of the Food and Drug Administration's standards for canned oysters was set aside by the appellate court with statements that it was "Outside the bounds of reason and fairness."

This ruled-out provision sought to require that Pacific oysters actually be labeled "Pacific Oysters," with both words of equal size; while permitting other oysters to be canned merely under a label designation "Oysters."

"Blanching" Method Influences Wide Change in Oyster Business

Development of the "blanching" method of preparing oysters for canning has had wide effect on the Pacific oyster business, in that it has greatly reduced the employment of steam-opening. Under current practice, the great majority of oysters are fresh-opened and graded. Thus it is possible to select those oysters whose size and condition best fits them for canning; and those which can be marketed better fresh or frozen.

In this way it has become possible for an oyster operator to engage in all phases of the business according to the promise of profits.

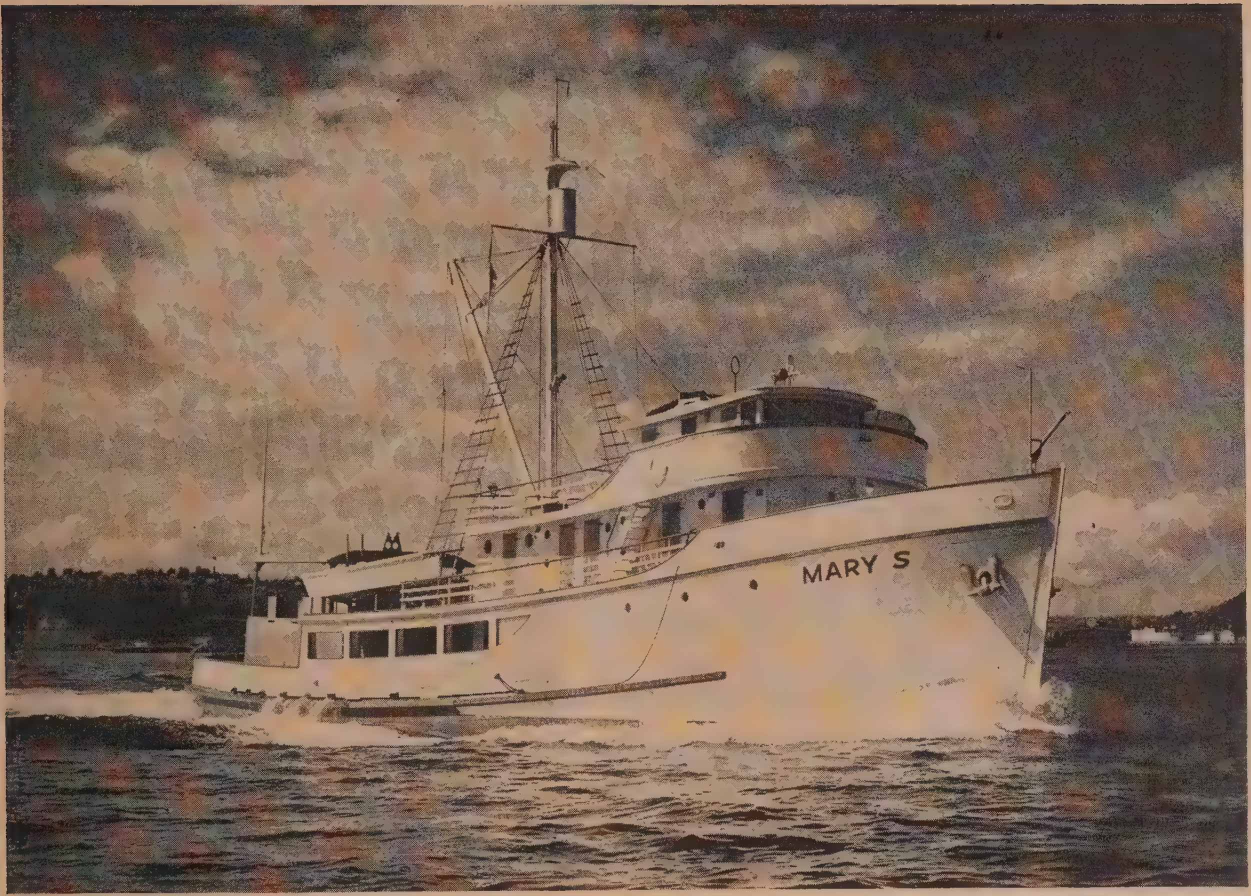
Landings of Fish on the Oregon Side of the Columbia River

JANUARY - SEPTEMBER, 1949

Month—	Salmon					Sturgeon				
	Chinook	Steelheads	Blueback	Silver	Chums	White	Green	Smelt	Shad	**Total Poundage**
January	30	....	....	20	....	....	....	....	....	**50**
February	38,074	45,874	....	206	....	12,358	....	259,851	....	**356,363**
March	7,815	7,440	60	....	....	1,071	....	271,040	....	**287,426**
April	....	....	....	....	....	....	....	....	....	....
May	1,050,525	8,682	....	....	....	42,480	1,029	....	79,749	**1,182,465**
June	312,041	3,504	330	....	....	60,195	898	....	256,859	**633,827**
July	1,106,092	98,175	11,145	258	....	79,286	4,238	....	30,321	**1,329,515**
August	3,786,892	262,374	1,086	20,245	....	18,539	2,548	....	86	**4,091,770**
September	1,956,869	244,878	10	309,254	89	20,798	3,650	....	93	**2,535,641**
Totals	**8,258,338**	**670,927**	**12,631**	**329,983**	**89**	**234,727**	**12,363**	**530,891**	**367,108**	**10,417,057**

EUREKA AREA FRESH FISH LANDINGS

Species	**November 1948** Pounds	**December 1948** Pounds	**January 1949** Pounds	**February** Pounds	**March** Pounds	**April** Pounds	**May** Pounds	**June** Pounds	**July** Pounds	**August** Pounds	**September** Pounds	**October** Pounds	**Total Pounds**
Salmon	....	....	....	....	....	111,200	153,400	171,000	189,300	167,500	29,000	....	821,400
Anchovy	2,500	....	....	....	....	....	....	....	....	....	....	....	2,500
Flounder	100	200	32,800	8,200	7,400	3,100	6,500	7,200	18,500	9,400	7,900	14,800	116,100
Halibut	....	....	....	....	....	....	10,500	10,200	26,100	4,800	500	500	52,600
Lingcod	10,100	8,800	19,300	7,700	21,000	44,800	26,800	61,100	46,400	98,100	47,700	26,500	418,300
Perch	....	....	....	....	2,300	1,500	....	....	200	700	1,500	....	6,200
Rockfishes	26,400	80,700	140,800	21,200	65,300	151,000	74,900	342,800	290,800	391,200	248,400	101,100	1,934,600
Sablefish (Black cod)	69,500	51,400	21,000	1,200	7,800	94,600	30,800	14,400	89,800	134,000	58,800	23,800	597,100
Sand Dabs	3,600	3,500	18,800	8,600	10,000	14,300	5,500	2,900	7,500	15,800	11,500	3,100	105,100
Shark	....	1,000	....	7,100	200	....	....	....	....	....	....	....	8,300
Smelt	....	....	....	....	....	....	....	....	....	500	400	....	900
Sole: Dover	376,300	74,900	6,200	1,600	28,900	286,200	500,700	962,900	785,800	1,519,700	910,600	651,400	6,105,200
English	56,700	45,700	336,500	95,200	210,200	241,100	62,500	51,600	73,200	147,200	266,200	122,400	1,708,500
French	4,800	7,900	10,800	2,900	2,800	....	....	19,700	....	11,300	7,200	1,000	68,400
Petrale	292,100	419,600	267,900	46,000	77,500	416,300	27,800	16,400	212,200	153,100	167,500	116,900	2,213,300
Rex	17,800	24,900	52,200	22,500	54,400	48,300	20,600	....	28,700	19,000	22,200	30,000	340,600
Sand	800	....	600	400	2,400	....	....	....	100	1,000	1,000	....	6,300
Tuna: Albacore	8,900	....	....	....	....	....	....	....	....	284,800	868,300	139,900	1,301,900
Turbot	1,200	100	....	100	300	....	....	....	1,800	....	....	....	3,500
Herring, sea	....	38,000	1,400	....	....	....	....	....	....	....	....	....	39,400
Livers	....	30,500	2,000	....	....	....	....	....	....	....	....	....	32,500
Octopus	....	125,300	410,900	270,100	354,900	439,400	....	100	....	200	....	....	3,700
Crabs	....	125,300	410,900	270,100	354,900	439,400	651,900	80,700	36,400	16,200	....	....	2,385,800
Whitebait	....	....	1,400	2,100	1,600	6,100	5,300	4,500	4,500	2,800	400	....	28,700
Miscellaneous	1,200	600	400	500	500	200	200	....	100	....	1,500	100	5,300
Total	872,100	913,600	1,324,200	495,700	848,200	1,858,700	1,577,400	1,745,500	1,811,400	2,977,300	2,650,600	1,231,500	18,306,200



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And as much at home at sea!

That's the Tuna Clipper

"MARY S"

109′ x 25′ 6″ x 12′ 10″

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A symbol of sturdy dependability from stem to stern is the 109-foot tuna clipper "MARY S", owned by Capt. Manuel Sousa, veteran San Diego tuna fisherman. The 200-ton capacity "MARY S", which won her spurs on the Tuna Track in 1949, has the built-in stability and seaworthiness so characteristic of all Martinac-built fish boats. She should be one of the big "money-makers" in 1950!

Her powerful 615-hp. Superior Diesel drives the "MARY S" at 10½ knots. Auxiliaries are two, a pair of 150-hp., 75-kw. Superior Diesel generating sets. Accessory equipment includes a Coolidge propeller, a 6″ Monel tailshaft and a 6″ Goodrich Cutless Bearings.

The refrigeration system in the "MARY S" carries plus-capacity, with four (1 - 6″ x 6″, 2 - 5″ x 5″, and 1-3″ x 3″) Worthington compressors. Navigational aids include a Fathometer, an Allen automatic marine pilot, a 500-watt Pacific Electronic radio telephone and an Apelco radio direction finder.

Our boat building facilities are second to none, and we welcome the privilege of serving our many friends and customers.

J. M. MARTINAC SHIPBUILDING CORP.

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1949—British Columbia Herring Production—1949

Week or Period Ending	**Fish Landed Tons**	**Dry Salted Herring Tons**	**Canned Herring Total Full Cases**	**Fresh and Bait Tons**	**Herring Meal Tons**	**Herring Oil (Imperial) Gals.**
January 8, 1949	2,043.75	....	....	8.00	338.95	17,605
January 15, 1949	641.49	....	336	288.00	1.15	315
January 22, 1949	1,216.74	....	689	992.46	42.35	16,599
January 29, 1949	2,667.12	....	466	445.86	425.55	19,051
February 5, 1949	14,793.64	38.00	320	233.53	2,218.40	151,395
February 12, 1949	20,144.57	136.00	802	71.50	3,037.60	135,835
February 19, 1949	15,233.69	116.00	....	64.00	3,175,30	93,284
February 26, 1949	19,314.56	....	....	....	2,785.65	76,313
March 5, 1949	491.06	....	....	....	1,336.55	38,035
Total Spring Season	**76,546.62**	**290.00**	**2,613**	**2,103.35**	**13,361.50**	**548,432**
October 22, 1949	8,179.50	....	....	....	1,175.15	172,301
October 29, 1949	19,483.06	....	7,263	103.50	3,164.20	521,504
November 5, 1949	21,463.44	460.00	21,147	230.47	3,057.85	403,230
November 12, 1949	6,244.52	146.92	10,407	79.81	1,259.80	242,254
November 19, 1949	9,655.00	171.88	311	112.24	1,625.00	268,771
November 26, 1949	6,933.48	30.00	....	63.73	1,151.35	172,530
December 3, 1949	9,364.00	108.27	5,770	198.41	1,363.15	166,699
December 10, 1949	10,783.77	770.17	30,489	209.24	1,592.10	189,851
December 17, 1949	4,461.00	205.01	....	46.39	775.30	102,838
January 6, 1950	9,691.23	....	....	7.69	911.20	77,135
Total Fall Season	**106,259.00**	**1,892.25**	**75,387**	**1,051.48**	**16,075.10**	**2,317,113**
Grand Total	**182,805.62**	**2,182.25**	**78,000**	**3,154.83**	**29,436.60**	**2,865,545**

	PREVIOUS YEARS							
		Canned Herring						
	Fish Landed Tons	**1-Lb. Talls Cases**	**1-Lb. Ovals Cases**	**½-Lb. Ovals Cases**	**Total Full Cases**	**Fresh and Bait Tons**	**Herring Meal Tons**	**Herring Oil (Imperial) Gals.**
1948 Spring Season	87,915.01	79,128	215,050	21,829	315,007	1,589.56	12,757.87	751,064
1948 Fall Season	112,705.18	....	....	....	*90,202	554.75	18,244.07	2,019,508
1948 Grand Total	200,620.19	79,128	215,050	21,829	405,209	2,144.31	31,001.94	2,770,572
1947 Spring Season	42,006.34	250,595	176,203	4,125	430,923	3,183.05	4,109.20	200,581
1947 Fall Season	77,412.98	219,635	698,786	10,748	929,719	1,045.25	7,212.09	1,092,057
1947 Grand Total	119,419.32	470,230	874,989	14,873	1,360,642	4,228.30	11,321.29	1,292,638
1946 Spring Season	29,376.48	71,537	61,290	21,975	154,802	3,304.71	3,437.30	251.838
1946 Fall Season	67,691.61	80,281	886,889	40,802½	1,007,972½	5,718.73	4,364.25	644,777
1946 Grand Total	97,068.09	151,818	948,179	62,777½	1,162,774½	9,023.44	7,801.55	896,615
1945 Spring Season	61,906.03	80,001	127,202	55,418	262,621	3,558.05	8,350.96	490,214
1945 Fall Season	70,193.36	67,296	1,056,310	30,290	1,153,896	1,131.10	4,420.45	610,643
1945 Grand Total	132,099.39	147,297	1,183,512	85,708	1,416,517	4,689.15	12,771.41	1,100,857

*Size of cans not designated.

British Columbia Frozen Fish Packs--1928 to 1949

YEAR	HALIBUT, Pounds	SALMON, Pounds	STEELHEAD AND FILLETS Pounds	SABLEFISH, Pounds	MISCELLANEOUS, Pounds	**Total Pounds**	YEAR
1928	6,922,064	10,183,276	503,798	707,488	1,793,317	**20,190,943**	1928
1929	7,013,413	7,971,042	324,123	533,000	1,305,898	**17,147,476**	1929
1930	5,375,642	6,544,460	414,720	645,142	741,386	**13,721,350**	1930
1931	5,467,170	5,758,952	414,000	292,829	240,469	**12,173,420**	1931
1932	6,197,495	7,672,062	533,244	307,922	228,740	**14,939,463**	1932
1933	6,620,254	7,158,967	344,974	388,751	471,924	**14,984,870**	1933
1934	8,956,815	10,182,469	40,672	180,119	920,509	**20,280,582**	1934
1935	9,756,717	10,707,787	226,000	789,000	861,860	**22,341,364**	1935
1936	9,504,340	11,320,303	234,690	1,266,555	742,043	**23,062,931**	1936
1937	9,550,661	11,698,592	200,361	1,378,442	698,481	**23,526,537**	1937
1938	10,870,867	12,662,933	324,000	1,329,009	987,260	**26,174,069**	1938
1939	13,414,006	9,631,742	189,516	1,080,053	813,956	**25,129,273**	1939
1940	13,453,612	11,347,239	237,000	1,285,915	1,317,404	**27,641,170**	1940
1941	14,560,498	9,632,364	91,913	1,604,554	966,559	**26,855,888**	1941
1942	16,571,639	12,150,338	18,046	1,697,327	3,541,929	**33,979,279**	1942
1943	10,397,337	13,313,250	60,076	2,320,559	2,667,881	**28,759,103**	1943
1944	12,574,036	14,793,573	572,315	1,856,055	3,763,055	**33,559,190**	1944
1945	10,290,942	19,931,674	1,745,529	1,254,623	5,890,142	**39,112,910**	1945
1946	12,782,294	14,384,544	1,972,000	1,778,855	11,486,110	**42,403,803**	1946
1947	14,930,795	13,583,850	1,057,828	729,492	6,357,106	**36,659,071**	1947
1948	11,512,287	15,209,533	1,650,856	1,651,028	18,236,028	**48,259,732**	1948
1949	11,505,968	16,365,561	1,841,821	1,825,713	4,913,908	**36,452,971**	1949

NOTE:—Since 1942 all Steelheads have been combined with Salmon; and figures given in the "Steelheads and Fillets" Column for years since 1942 cover quantities of fillets of all varieties of fish reported.

British Columbia Output of Herring Products, Canned Pilchards, etc., 1915 to 1949

(By Calendar Years)

Year	Herring								Pilchards, Canned* Cases (48-lbs.)	Year
	Fish Landed "Green" Cwts.	Canned Cases (48-lbs.)	Dry Salted, Cwts.	Cured and Smoked, Cwts.	Pickled Bbls.	Fresh and Frozen (Incl. Bait), Cwts.	Oil, Imperial Gallons	Herring Meal, Tons		
1915..	467,452	†11,468	183,704	5,791	8,890	108,302	....	....	....	1915
1916..	496,030	35,487	172,988	4,014	7,590	145,844	....	....	....	...1916
1917..	487,241	46,650	161,865	6,263	7,293	144,743	....	....	1,090	...1917
1918..	636,921	61,657	172,610	19,564	....	122,128	....	....	63,963	...1918
1919..	567,868	64,002	255,058	9,979	6,796	61,199	....	....	63,065	...1919
1920..	1,001,357	19,986	512,168	8,197	1,431	97,413	....	....	91,929	...1920
1921..	944,866	4,149	479,971	8,133	2,417	102,487	....	....	16,091	...1921
1922..	1,002,519	2,114	522,768	6,946	755	96,164	....	....	19,186	...1922
1923..	1,035,823	3,099	744,036	6,728	1,970	84,309	....	....	17,195	...1923
1924..	1,157,625	....	853,543	9,193	146	73,833	....	....	14,898	...1924
1925..	1,437,875	391	1,083,174	5,622	52	71,169	....	....	37,182	...1925
1926..	1,301,269	433	938,647	6,199	80	71,788	13,700	310	26,731	...1926
1927**	1,724,246	....	1,048,190	15,005	138	81,222	170,450	1,838	58,501	...1927
1928..	1,535,118	....	1,072,188	6,187	65	114,635	68,411	831	65,097	...1928
1929..	1,315,667	....	923,848	6,060	187	126,717	37,264	437	98,821	...1929
1930..	1,221,962	....	805,973	4,713	46	86,642	60,373	1,774	55,166	...1930
1931..	1,480,314	43	788,227	2,315	142	71,566	110,810	3,094	17,336	...1931
1932..	1,003,204	....	269,420	296	50	57,322	186,173	6,195	4,622	...1932
1933..	1,077,373	....	513,024	2,445	100	33,701	316,213	4,078	2,946	...1933
1934..	820,362	2,295	414,626	3,213	132	53,448	104,710	2,570	35,437	...1934
1935..	1,008,507	....	302,710	4,386	117	72,848	306,767	5,262	27,184	...1935
1936..	1,620,625	51,695	383,337	4,335	28	44,362	782,499	10,085	35,007	...1936
1937..	1,929,795	27,365	203,401	3,601	68	82,181	1,283,658	14,427	40,975	...1937
1938..	1,328,913	23,376	149,700	52	20	73,489	929,158	9,624	69,473	...1938
1939..	2,164,812	222,658	160,315	13,733	1,591	56,536	1,366,607	16,482	7,300	...1939
1940..	3,395,013	727,292	104,812	15,816	1,737	79,878	1,700,819	24,264	59,166	...1940
1941..	1,688.515	1,013,329	3,850	4,643	834	96.832	584,157	8,757	58,038	...1941
1942..	2,040,840	1,253,978	....	....	2,440	48,600	653,710	10,896	46,451	...1942
1943..	1,592,249	1,221,015	....	....	....	44,870	678,464	10,114.66	101,356	...1943
1944..	1,799,600	1,211,866	....	....	2,936	79,535	857,164	8,507.14	92,882	...1944
1945..	2,641,988	1,416,517	....	....	....	4,689	1,100,857	12,771.41	75,724	...1945
1946..	1,941,362	1,162,774	....	....	....	180,469	896,615	7,801.55	....	...1946
1947..	2,380,206	1,360,642	....	....	....	84,566	1,292,638	11,321.29	....	...1947
1948..	4,012,444	405,209	....	....	....	42,886	2,648,839	29,636	....	...1948
1949..	3,656,112	78,000	43,845	....	....	63,096	2,865,545	29,436.60	....	...1949

* Other pilchard products, and tonnage of pilchards landed, are shown in tabulations in the Fish Oil and Meal Department of this issue.
** In 1927 there were gathered 1,000 cwt. herring scales.

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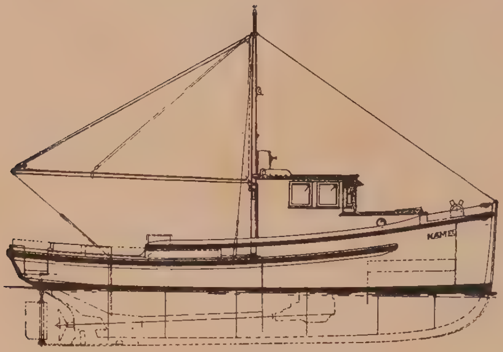

34′ x 10′ 6″ x 4′ Wood Troller. Roomy. More Cargo Space.

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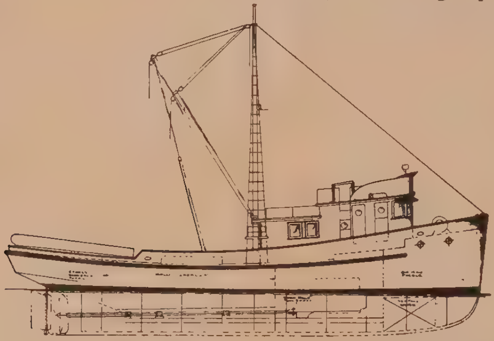

65′ x 18′ x 8′ 5″ Steel Combination Seiner and Dragger.

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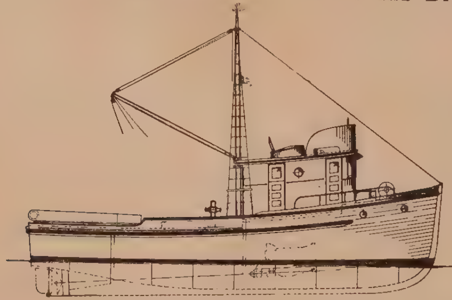

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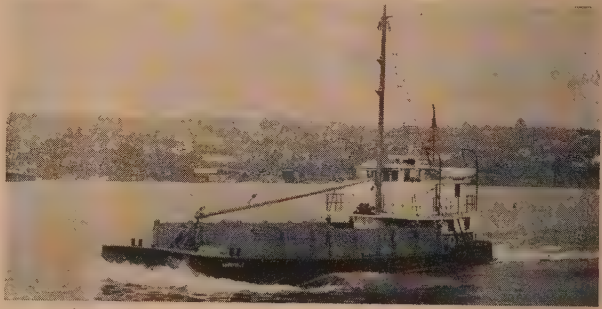
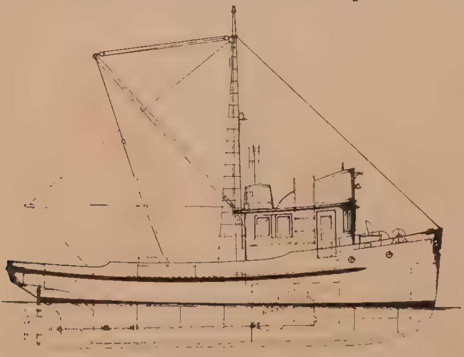
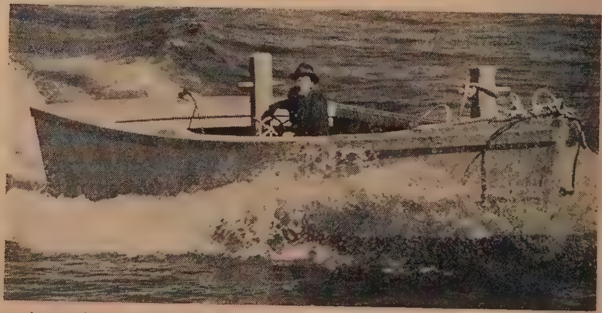


80′ x 24′ x 6′ Steel Power Scow. Two 115-hp. Diesels.



40′ x 12′ x 5′ 3″ Welded Steel Troller. Well Arranged.



21′ x 11′ x 1′ 2″ Seine Skiff with Steel Tunnel. Speed 12 mph. with 90-hp. engine. Plans also available on several other sizes.

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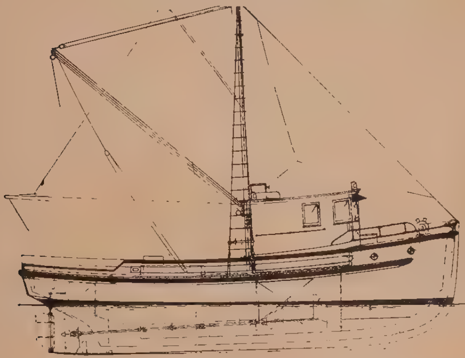

40' x 12' x 6' Wood Troller. Also seiner and halibut.

60' x 16' Wood Halibut Boat for British Columbia.

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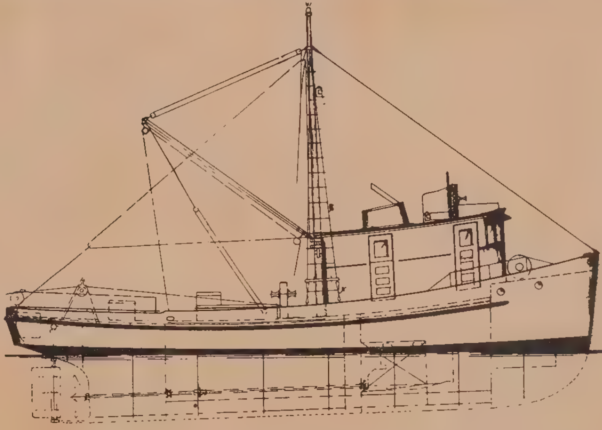

Above: 45' x 13' 4" Steel Combination Fishing Boat designed for trolling, seining and trawling.

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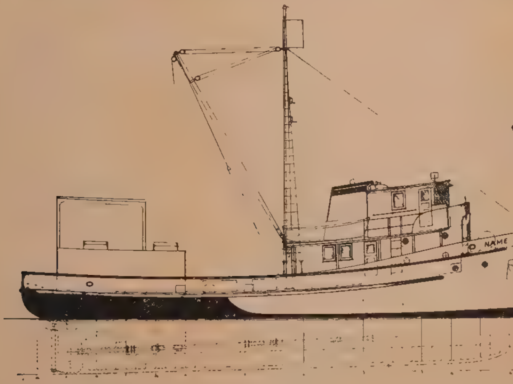
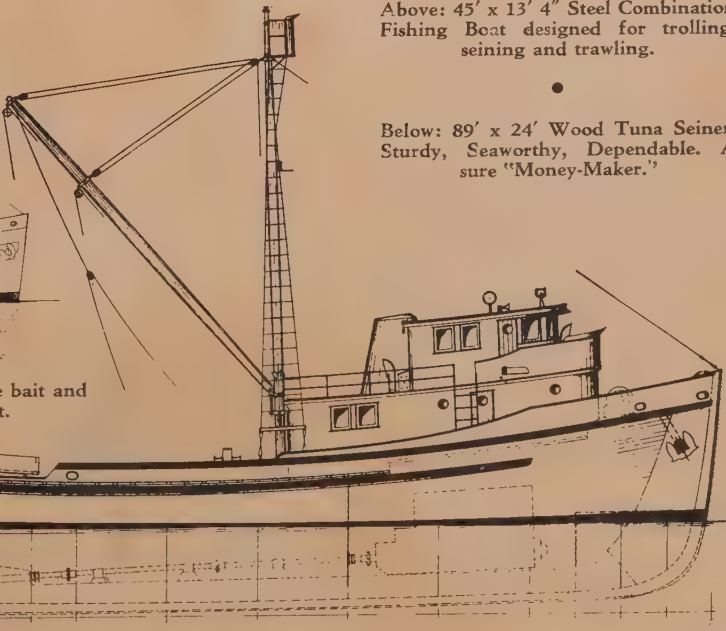


Steel Tuna Boat: 74' x 22' Combination vessel, for live bait and seining. Refrigerated, modern in every respect.



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OIL and MEAL

Marked recovery of California's sardine fishery in 1949, with sharp gains in the yield of sardine oil and meal, more than offset the adverse effect of the shut-down of a large portion of the Alaska herring industry.

Although California's yield of oil and meal did not attain the levels of former years, 1949 brought much encouragement.

British Columbia continued steadily to increase its by-products business by utilizing cannery waste, thereby offsetting the decline of its pilchard fishery.

Pacific production of fish oil and meal in 1949 was more adequate than in several years past, although not up to the flush levels of the past.

California's sardine business swung-back in fine style, although sharp limitation of the tonnage of sardines allowed for unrestricted reduction by the Fish and Game Commission served to divert a very large portion of the catch into cans. Consequently, the oil and meal yield of that state in 1949 falls somewhat short of the average of former years.

Alaska's herring industry suffered shutdown in two of the districts, and marked curtailment in the third, due to inability of the fishermen and plant operators to reach an agreement as to price. Marked weakness in the market for herring products, notably oil, limited the operators' offers for fish, and the fishermen held their ideas high above any level upon which agreement could be reached.

Price Blocks Herring Season

There was no herring operation in the Prince William Sound or Kodiak districts. In Southeast Alaska four plants got started very late in the season under two types of operating agreements sanctioned by the fishermen. One ran on the basis of a cooperative enterprise. The other three plants operated on a schedule which called for the fishermen to receive a guaranteed minimum price, or a percentage of the amount realized from the products, whichever should be the greater.

Due to the lateness of the start, and rather unfavorable fishing conditions, results of the season generally were regarded as unsatisfactory.

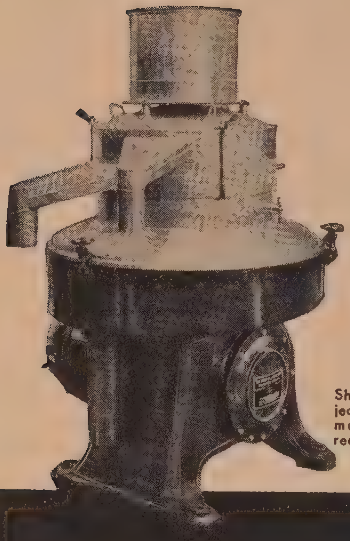
British Columbia in 1949 continued actively to expand its fish reduction business, particularly in the salmon cannery by-products division.

1949—PACIFIC COAST FISH OIL AND MEAL—1949

Regions and Districts	Fish Meal, Tons	Herring Oil, Gallons	Sardine or Pilchard Oil, Gallons	Other Fish Oil, Gallons	Total Fish Oil, Gallons	Regions and Districts
Alaska	3,608	601,186	....	66,900	668,086	**Alaska**
British Columbia	33,237	3,438,654	....	180,000	3,618,654	**British Columbia**
Washington	3,200	....	....	207,000	207,000	**Washington**
Puget Sound	2,700	....	....	203,000	203,000	Puget Sound
Grays Harbor	500	....	....	4,000	4,000	Grays Harbor
Oregon	1,786	....	....	26,700	26,700	**Oregon**
California	61,468	....	6,166,697	546,098	6,712,795	**California**
San Francisco Bay	2,870	....	590,071	16,486	606,557	San Francisco Bay
Monterey	17,134	....	3,376,760	....	3,376,760	Monterey
San Pedro Area	30,111	....	2,199,866	244,713	2,444,579	San Pedro Area
San Diego	11,353	....	(a)	284,899	284,899	San Diego
GRAND TOTALS	103,299	4,039,840	6,166,697	1,026,698	11,233,235	**GRAND TOTALS**

(a) Combined with San Pedro Area.

MULTIPLY PROFITS in your reduction plant BY SIMPLE ADDITION



Sharples Nozljector for maximum fish oil recovery.

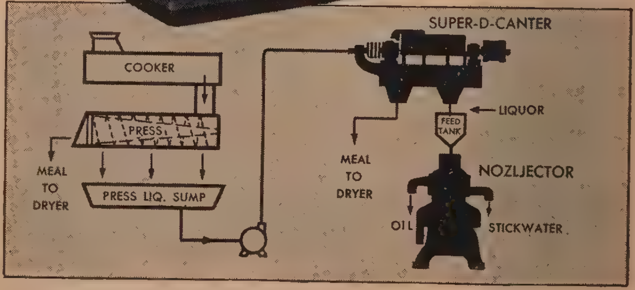
More meal • more oil • continuous operation

If you considered only the extra meal recovered from your press liquor, the addition of a Sharples Super-D-Canter would pay for itself in less than one season. But you get much more than that.

Because the Super-D-Canter effectively removes fish meal, your oil separating centrifuge operates more efficiently . . . removing more oil and providing long periods before requiring cleaning. The Sharples Super-D-Canter for thoroughly removing meal which can pass directly to the dryer . . . and the Sharples Nozljector for maximum recovery of oil are the ideal combination for fish reduction plants. Not only is the recovery of valuable fish meal and oil greater, but you also produce a better grade oil which is lighter in color and lower in free fatty acid content. All these factors mean multiplied profits for you.

Why not know the facts. A Sharples engineer will gladly call at your plant without obligation, analyse your production, and tell you just what Sharples equipment will do for you.

Sharples Super-D-Canter for thorough removal of fish meal from press liquor.



Flow diagram of typical fish reduction plant showing Sharples Super-D-Canter and Sharples Nozljector.

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1949—CALIFORNIA SARDINE REDUCTION—1949

	San Francisco Area			Monterey Area			San Pedro and San Diego			All Areas Combined		
Months	Tons of Fish	Gallons of Oil	Tons of Meal	Tons of Fish	Gallons of Oil	Tons of Meal	Tons of Fish	Gallons of Oil	Tons of Meal	**Tons of Fish**	**Gallons of Oil**	**Tons of Meal**
January	61	541	8	1,215	5,884	97	15,649	120,937	1,621	16,925	127,362	1,726
February	......	......	......	......	......	......	75	254	8	75	254	8
March	......	......	......	......	......	......	......	......	......	......	......	......
April	......	......	......	235	591	21	6	......	4	241	591	25
May	......	......	......	1,451	10,975	166	490	6,529	76	1,941	17,504	242
June												
July												
Spring Totals	61	541	8	2,901	17,450	284	16,220	127,720	1,709	19,182	145,711	2,001
August	608	17,027	91	13,618	258,599	1,549	20*	......	......	14,246	275,626	1,640
September	4,483	145,171	584	46,417	1,255,159	5,907	22*	......	......	50,922	1,400,330	6,491
October	5,022	205,087	855	37,327	1,178,168	5,128	75,197	1,142,765	10,224	117,546	2,526,020	16,207
November	4,181	149,245	806	16,207	399,892	2,183	20,495	321,815	2,770	40,883	870,952	5,759
December	2,032	73,000	300	15,980	267,492	2,083	38,961	607,566	5,108	56,973	948,058	7,491
Fall Totals	16,326	589,530	2,636	129,549	3 359,310	16,850	134,695	2,072,146	18,102	280,570	6,020,986	37,588
Grand Totals	16,387	590,071	2,644	132,450	3,376,760	17,134	150,915	2,199,866	19,811	299,752	6,166,697	39,589

*Season not opened but this amount received in loads which contained less than 10% sardines in accordance with Fish and Game legislation.

In the Pacific Northwest the pilchard fishery of 1949 was a flat failure, no fish whatever being processed, despite weeks of searching by sea and by air.

One of the most notable developments in the Pacific fish reduction industry in 1949 was the growth of the condensed fish solubles business, and particularly the trend toward improvement in the quality of the products.

Condensed fish solubles plants are now in operation in Alaska, British Columbia, Oregon and California, although there is still room for wide increase in utilization in Alaska at least.

Particularly where the quality of the condensed fish solubles is kept high, the market price for the goods has proven a valuable addition to the industry's income.

Alaska Herring Operations Limited to Southeastern

Herring operations in Alaska during 1949 fell into a pattern quite unlike anything the industry had known before.

Deadlock between the fishermen and the packers kept all but four plants idle throughout the year. Negotiations finally broke down with the two sides far apart, the packers offering 15c per bbl. and the fishermen's proposals never getting below 23c. Weakness in the fish oil market forced the operators to take a cautious attitude.

First of the four outfits to get started was that of the Alaska Fishermen's Cooperative, which leased the floating reduction plant *Pacific Rim* from Newport Fisheries. The plant was served by the four boats *American Star, Pacific Fisher, Storm* and *Challenger,* and the cooperative was financed by shares of $625, each of the 32 fishermen putting up one share, each captain two shares, and each boat six. After net cost of operations was deducted, balance was split 20% to the plant, 30% to the boats, 40% to the fishermen, and 10% to the skippers.

A little later—just before the middle of July, and about a month after the start of the season—three other outfits completed a special deal which enabled them to get going.

Storfold & Grondahl Packing Co., Arentsen & Co., and Buchan & Heinen Packing Co. arranged a deal with the fishermen based on: one-fourth of the gross revenue received for products made from fish caught by a boat to be divided among the eight men in the crew; Minimum payment of 15c per bbl. of fish guaranteed to each man; Operators to pay boat skippers outside the above agreement.

Southeast Alaska Fishing Again Proves Disappointing

Handicapped of course by the lateness of their start, the four operations in Southeast Alaska also found fishing much poorer than was hoped. They had a 200,000-bbl. quota on which to work, but the total take for the district fell very far short of yielding this limit.

Pacific Northwest Pilchard Operations Absolutely Blank

Despite the fact that a determined effort was made by reduction plant operators on the Columbia River to locate fish, with scout planes working the sea daily for nearly two months, not a ton of pilchards was delivered on the Columbia River or Grays Harbor for reduction in 1949.

The California sardine was back, to the tune of more than 245,000 tons as 1949 drew to a close, and a staggering sardine fish meal and oil business received a shot in the arm which it sorely needed.

Landings broken down as of Dec. 19, 1949, showed San Francisco had received a total of 15,409 tons as compared to 551 to the same date in 1948; Monterey had taken 123,675 tons as against 37,270; and San Pedro had landed 105,036 tons as compared to 84,253.

Oil Market Low and Weak

As of the first of July, 1949, sardine oil was selling for around 5½c per lb., then moved to 6c, and after the northern California season opened it was being quoted at 6¾c, and 7c. In September it was for 7c, but with a weakening in other fats, sardine oil took a drop to 6c and stayed there until about the middle of October when it rose to 6½c, following the trend of soy bean oil. Toward the end of October sardine oil was selling a little lower, for 6¼c per lb., and as the season ended in northern California, it was selling for around 6c.

Market observers reported the market was thin—it was a buyers' market, for 1950 was opening with a surplus of fats and oils held by the government. It was the feeling of observers that unless a lot of this material was moved into the export market, the sardine oil market would be sluggish for a long time.

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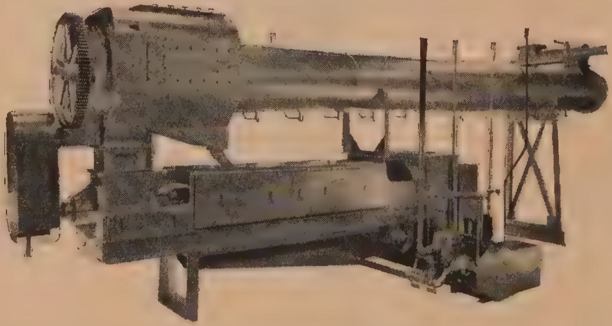

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California Fish Oil and Meal Production — 1930 to 1949

Fish Oil, Gallons					Year	Fish Meal, Tons				
San Francisco District	Monterey District	San Pedro District	San Diego District	**Total Gallons**		San Francisco District	Monterey District	San Pedro District	San Diego District	**Total Tons**
747,931	3,769,950	1,282,893	41,989	**5,842,763**	1930	3,375	13,752	13,653	4,859	**35,639**
726,514	2,372,303	818,364	7,511	**3,924,692**	1931	3,597	8,416	7,600	2,877	**22,440**
426,831	3,378,929	1,293,961	25,678	**5,125,399**	1932	2,435	12,560	9,846	2,659	**27,500**
933,696	4,209,366	2,585,784	58,948	**7,787,794**	1933	4,941	18,869	18,249	4,310	**46,369**
2,490,156	9,322,080	4,221,447	94,525	**16,128,208**	1934	11,138	34,492	27,236	4,858	**77,724**
3,106,785	6,734,305	3,821,566	261,482	**13,924,138**	1935	12,994	27,966	31,163	6,572	**78,695**
5,626,422	6,756,541	2,834,887	260,059	**15,477,909**	1936	24,593	30,431	23,588	7,655	**86,267**
4,431,668	4,122,817	2,578,600	191,757	**11,324,842**	1937	22,916	21,118	29,184	8,300	**81,518**
7,032,792	4,753,160	2,126,661	130,606	**14,043,219**	1938	31,773	25,202	24,209	6,732	**87,916**
10,395,398	6,894,201	1,594,122	96,806	**18,980,527**	1939	43,369	33,238	21,858	6,704	**105,169**
4,831,500	5,745,120	2,509,291	129,079	**13,214,990**	1940	21,256	28,004	29,542	7,335	**86,137**
7,429,493	7,537,870	2,627,959	81,876	**17,677,198**	1941	32,773	38,875	25,832	5,332	**102,812**
4,183,492	5,219,441	3,146,680	137,027	**12,686,640**	1942	17,748	25,170	31,633	4,452	**79,003**
4,979,798	6,652,715	2,262,889	120,777	**14,016,179**	1943	19,682	37,416	24,753	4,300	**86,151**
5,722,966	8,509,678	3,903,785	133,356	**18,269,785**	1944	24,452	42,452	34,945	5,283	**107,132**
3,778,814	5,145,907	2,948,595	188,795	**12,062,111**	1945	16,177	26,105	29,822	6,549	**78,653**
72,089	922,103	3,641,810	266,623	**4,902,625**	1946	1,597	6,572	36,859	7,867	**52,895**
17,869	497,271	1,795,095	323,369	**2,633,604**	1947	837	4,453	22,555	9,220	**37,065**
20,382	924,048	1,529,447	354,320	**2,833,197**	1948	371	8,061	24,677	11,341	**44,450**
606,557	3,376,760	2,444,579	284,899	**11,233,235**	1949	2,870	17,134	30,111	11,353	**103,299**

NOTE:—This table includes all fish oil except vitamin oils from livers, and includes oil from fish plant offal as well as from whole fish. Meal figures include solid residuum recovered from stickwater. The San Francisco district as reported covers all California north of Monterey Bay.

It was reported that synthetics have been replacing fats in the soap trade, and of course this has had an effect on the sardine oil market, for the soap trade was not active in buying sardine oil as it has been in the past.

Meal Market Relatively Firm

As the 1949-50 California sardine season started, sardine meal was selling for around $2.40 per unit of protein per ton. It had risen to $2.80 when the season opened in southern California, and dropped back to around $2.55, as the year ended. Price weakening was attributed to the fact that some producers could not afford to hold on to their production.

As 1949 opened meal was selling for around $2.00 per unit, but as the year advanced so did the price of sardine meal, which climbed steadily to around $3.00 per unit of protein per ton during the spring and summer, and some producers made contract for $3.25. But as comparatively heavy fishing took place in San Francisco, the price staged a slow decline.

Rebuilding Proposals Are Varied

In December, 1948, Richard S. Croker, chief, Bureau of Marine Fisheries, Division of Fish and

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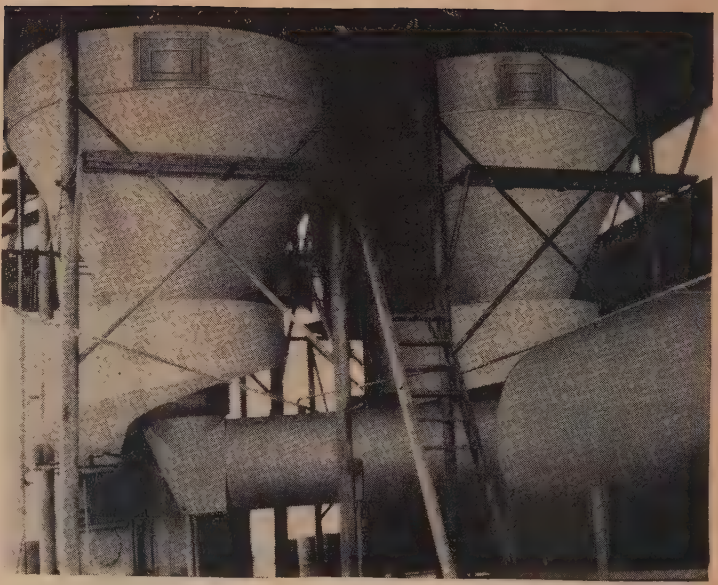

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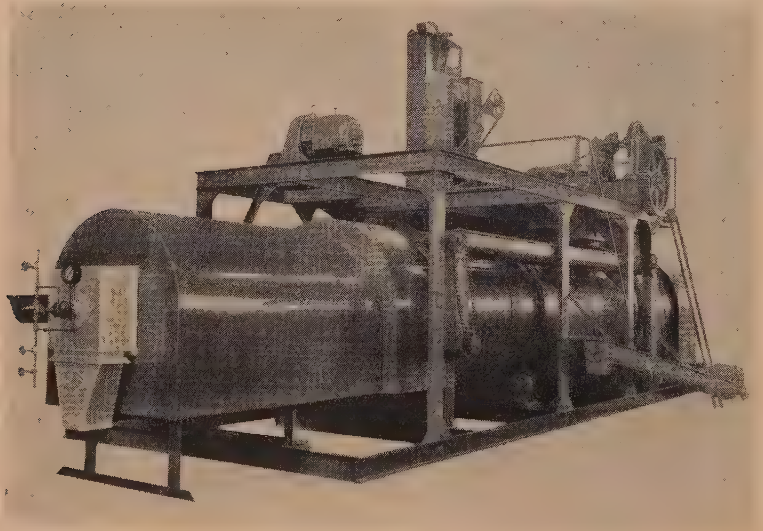

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1949—FISH LIVER RECEIPTS BY SEATTLE DEALERS—1949

Species:	**Dec. 1948**	**Jan. 1949**	**Feb.**	**March**	**April**	**May**	**June**	**July**	**August**	**September**	**October**	**November**	**Total**
	Pounds	**Pounds**	**Pounds**	**Pounds**	**Pounds**	**Pounds**	**Pounds**	**Pounds**	**Pounds**	**Pounds**	**Pounds**	**Pounds**	**Pounds**
Dogfish	191,886	101,603	76,182	167,125	197,041	495,774	220,066	93,027	40,284	46,822	72,459	108,526	**1,810,795**
Halibut Viscera	....	72,397	66,178	....	....	164,967	296,149	158,029	18,341	73,960	786	15,768	**866,575**
Sablefish Viscera	....	106,311	30,485	....	140	974	2,023	12,169	15,414	65,613	4,948	34,987	**273,064**
Lingcod	22,168	18,779	10,471	6,989	8,709	10,163	19,783	16,029	28,390	20,396	17,672	13,461	**193,010**
Soupfin Shark	4,835	20,256	24,745	25,239	5,359	10,473	29,025	45,337	21,710	14,062	10,441	21,399	**232,881**
Miscellaneous	160,079	212,338	109,120	168,219	104,634	253,642	515,283	424,136	268,893	321,186	268,317	153,632	**2,959,479**
Total	**378,968**	**531,684**	**317,181**	**367,572**	**315,883**	**935,993**	**1,082,329**	**748,727**	**393,032**	**542,039**	**374,623**	**347,773**	**6,335,804**

Game, recommended to the Fish & Game Commission that no sardine reduction permits be granted at all for the 1949-50 season. He stated that the sardine population was at a dangerously low level.

After considerable discussion Harvey E. Hastain, president of the commission, stated that no action on Mr. Croker's recommendation be taken at that time.

With the end of the 1948-49 season legislative recommendations by Mr. Croker made it evident that the various segments of the California sardine industry were going to go their separate ways in seeking to rebuild the fishery.

In a letter to Thomas Erwin, chairman of the California Assembly's interim committee on fish and game, Mr. Croker recommended that the legislature delegate certain regulatory powers to the Fish & Game Commission in order to rehabilitate the sardine and Pacific mackerel fisheries.

He said that under the system he proposed it is possible to amend regulations to meet changing conditions. Any such system of regulatory powers would be surrounded with statutory checks and balances to prevent abuse.

Provisions would be made for an advisory committee which would be consulted prior to the adoption of any resolution, according to Mr. Croker's plan. The advisory committee insofar as sardines and mackerel are concerned would consist of five members, one representative each of labor (fishermen and cannery workers); boat owners; management (plant operators); organ-

1949—SHARK LIVER AUCTION, SAN FRANCISCO—1949

Vitamin A Potency Classification	**Month**	**Number of Cans**	**Average Oil Content** (Per Cent)	**Vitamin A per Gram of Oil** (Units)	**Vitamin A per Lb. of Liver** (Million Units)	**Price per Lb. of Liver** (Dollars)	**Price per Million Units** (Cents)
1—50,000	January	7-MX—1-F	46.50	26,289	5.54	1.27	22.93
	February	2-F	64.00	30,000	8.71	1.75	20.09
	March	4-MX	63.50	31,385	9.04	2.13	23.57
	April		....	....	....	....	....
	May	10-M	59.75	34,975	9.48	1.86	19.63
	June	4-F	59.50	28,200	7.61	1.07	14.06
	July	9-F	56.50	20,200	5.18	.52	10.04
	August		....	....	....	....	....
	September		....	....	....	....	....
	October		....	....	....	....	....
	November		....	....	....	....	....
50,001—100,000	January	4-M	62.00	78,760	22.15	6.31	28.48
	February	4-M	61.50	90,600	25.27	6.97	27.58
	March	3-M	58.00	80,581	21.20	5.78	27.26
	April		....	....	....	....	....
	May		....	....	....	....	....
	June	3-M	56.00	81,200	20.63	5.06	24.53
	July	8-M	56.50	97,600	25.01	5.02	20.07
	August		....	....	....	....	....
	September		....	....	....	....	....
	October		....	....	....	....	....
	November		....	....	....	....	....
150,001—200,000	January	51-M	61.84	119,035	33.39	10.57	31.66
	February		....	....	....	....	....
	March	12-M	58.50	119,346	31.67	9.14	28.87
	April	36-M	57.95	148,400	36.009	11.51	29.51
	May	161-M	55.20	140,035	35.06	10.42	29.73
	June	109-M	56.00	137,828	35.01	10.30	29.42
	July	55-M	56.12	129,742	33.03	7.71	23.35
	August	7-M	55.00	137,000	34.18	6.53	19.10
	September		....	....	....	....	....
	October		....	....	....	....	....
	November		....	....	....	....	....
150,001—200,000	January		....	....	....	....	....
	February		....	....	....	....	....
	March	2-M	62.50	165,397	46.89	13.60	29.00
	April	31-M	56.23	182,762	46.61	13.62	29.22
	May	123-M	55.30	166,432	41.75	12.49	29.93
	June	44-M	54.52	163,730	40.49	11.84	29.24
	July	58-M	54.54	162,274	40.15	9.86	24.56
	August	11-M	57.00	164,000	42.40	8.36	19.72
	September		....	....	....	....	....
	October		....	....	....	....	....
	November		....	....	....	....	....

NOTE: "M" denotes male soupfin; "F" denotes female soupfin, and "MX" denotes mixed livers.

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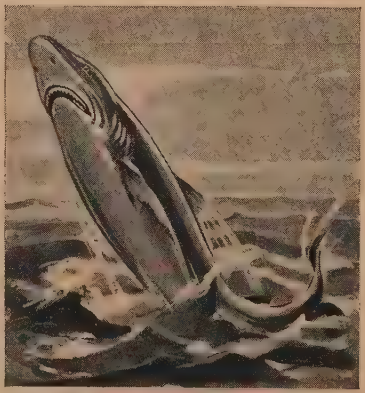

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VITAMIN LIVER LANDINGS, SEATTLE

Year	Dogfish Livers	Lingcod Livers	Soupfin Livers	Miscellaneous Livers
	Pounds	Pounds	Pounds	Pounds
1942	2,149,178	....	333,009	....
1943	2,246,072	....	454,483	....
1944	4,909,547	....	406,563	....
1945	2,568,317	....	179,351	....
1946	2,619,981	114,528	94,752	586,968
1947	1,782,328	73,464	58,791	537,873
1948	1,496,371	147,396	71,547	779,778
1949*	1,810,795	193,010	232,881	2,959,479

* Figures for 12 months, including December, 1948, and Jan.-Nov., 1949.

ized sportsmen, and a member of one of the legislative committees on fish and game.

Mr. Croker then recommended that the law specify that the California sardine processing industry may not be cut below a take of 100,000 tons per year.

Several methods of alloting quotas were outlined by Mr. Croker:

1. A state-wide industry quota with all boats and plants starting simultaneously on a first-come, first served basis. (This sort of plan has been satisfactory in the halibut industry, according to Mr. Croker)

2. Regional allotments with each area receiving its own quota.

3. Each plant to be given a specific season quota, under permit, based on previous operations. (Mr. Croker said this would be the most equitable method.)

4. Each vessel to be given a specific seasonal quota, under permit, based on the size of the boat.

Mr. Croker finally stated that the total bag limit system can be expected to aid the recovery of the sardine and mackerel fisheries with a minimum of dislocation to the industry.

He said that closed seasons offer little protection to a pelagic migratory fish, and that only a seasonal limit or quota system can insure a season both short enough to pro-

CALIFORNIA FISH REDUCTION PLANTS

MONTEREY DISTRICT

Ace Packing Co., Inc., Frank Verga	Moss Landing
Aeneas Sardine Products Co., Frank Enea Lucido	Monterey
Atlantic Coast Fisheries Co., J. R. Perry	Monterey
California Frozen Fish Company, Sal Ventimiglia	Monterey
California Packing Corp., Don T. Saxby (2 plants)	Monterey
Carmel Canning Co., J. R. Perry	Monterey
Custom House Packing Co., Barney Kitchens	Monterey
Del Vista Packing Co., W. O. Lunde	Monterey
Edgewater Packing Co., C. J. Broad	Monterey
Enterprise Packers, Sebastian Sollecito	Monterey
Hovden Food Products Corp., K. Hovden (2)	Monterey
Hovden Food Products Corp., K. Hovden (2)	Moss Landing
Lone Wolf Packing Co., Wilbur Sandholt	Moss Landing
Lucido Fisheries, C. D. Day	Monterey
Magnolia Packing Co., W. B. Hornblower	Monterey
Monterey Canning Co., Magnus Flause	Monterey
Monterey Fish Products, Inc., Frank Lucido	Monterey
Moss Landing Fisheries, F. J. Arnone	Moss Landing
Oxnard Canners, S. A. Ferrante (2)	Monterey
Peninsula Packing Co., G. M. Dollar (2)	Monterey
Port Costa Packing Co., Frank Richey	Moss Landing
San Carlos Canning Co., C. D. Day (2)	Monterey
Santa Inez Fisheries, Inc., Wm. C. Morehead	Moss Landing
San Xavier Fish Packing Co., F. E. Raiter	Monterey
Sea Beach Packing Co., Sal Palma	Monterey
Sea Wolf Packing Co., Wilbur Sandholt	Moss Landing
Sun Harbor Packing Co., Jack Crivello (2 plants)	Monterey
Thomas Fisheries, Wilbur-Ellis Co.	Moss Landing
Western Fish Products Co., K. Hovden	Moss Landing
Western Sardine Co., Inc., Joe DiMaggio	Monterey

SAN FRANCISCO DISTRICT

American Sardine Co., Matt Martin	Benicia
F. E. Booth Co., Inc., A. H. Mendonca	San Francisco
Calif. Fish Products Co., E. L. Roesling	Pt. San Pablo
Cargill, Inc., Wm. F. Drum	San Francisco
Carquinez Fisheries, John Costanza	Pt. San Pablo
Collett, Week & Nibecker, E. F. Week, Jr.	Burlingame
Cypress Fisheries, W. L. Martignoni	Pt. San Pablo
East Bay Fisheries, F. J. Mullins	Pt. San Pablo
Edible Fish Meals & Oils, Alex Inlach	Pt. San Pablo
Fish-Dee-Lish Corp., E. L. Roesling	Pt. San Pablo
Fish Packers, Inc., Mrs. Pearl Kirchmann	McNear's Pt.
Gardenia Fisheries, Mrs. Pearl Kirchmann	Pt. San Pablo
Golden State Fisheries, C. J. Garibotti	Benicia
Grader Marine By-Products Co., W. F. and H. B. Grader	Ft. Bragg
Elwyn C. Hale Fisheries, Mrs. Mabel E. Hale and Elwyn C. Hale (2 plants)	Pt. San Pablo
Hoffman Packing Co., E. L. Roesling	McNear's Pt.
J. D. Packing Co., J. A. Davi and Gus Bruno (2)	San Francisco
Keystone Fisheries, Erling F. Week, Jr.	San Francisco
Lansing Fisheries, W. L. Martgnoni	San Francisco
Maritime Industries, Gib Hunter	Field's Landing
Martinez Food Canners, John Costanza	Martinez
Monitor Fisheries, E. C. Webber	Pt. San Pablo
Nopco Chemical Co., J. A. Raynolds	Richmond
Northern Packing Corp., Geo. Christo	San Francisco
Old Capitol Packers, Inc., E. L. Roesling	McNear's Pt.
Ozol Packing Co., Frank Mezin	Ozol
Pittsburg Canners, Inc., J. G. Burnette	Pt. San Pablo
Pt. Edith Fisheries, Inc., Charles Cohn	Port Chicago
Polarine Fisheries, Inc., E. T. Meakin	Pt. San Pablo
Princeton Industries, Oscar Haber	Half Moon Bay
Red Rock Fisheries, Inc., J. H. Dempsey (2)	Pt. San Pablo
Redondo Fish Prod. Co., Jack Cardinalli (2)	Pt. San Pablo
Richmond Fisheries, Inc., Julian G. Burnette	Pt. San Pablo
Royal Soap & Tallow Co., L. Martinelli	San Francisco
San Pablo Barge, G. Hunter	Pt. San Pablo
San Pablo Fisheries, J. H. Dempsey	Pt. San Pablo
Sardine Fisheries, Ltd., Frank Mezin	Ozol
Tamalpais Fishing & Packing Co., J. J. Dorsey (2)	Pt San Pablo
Valianos, Inc., John Valianos	San Francisco
Winged Victory Fish Prod. Corp., Geo. J. Christo	San Francisco

SAN PEDRO DISTRICT

Cal-Cap Fisheries, Tony Ostoich	Wilmington
Calif. Marine Curing & Pkg. Co., Max J. Gorby	Terminal Island
Calif. Sea Food Co., Meyer Simon	Long Beach
Coast Fishing Co., J. R. Biven	Wilmington
Franco-Italian Packing Corp., Jos. Mardesich	Terminal Island
French Sardine Co., Joseph J. Bogdanovich (2)	Terminal Island
K & M Fisheries, M. D. Marsh	Long Beach
Pan-Pacific Fisheries, Inc., Gerald Cigliana	Terminal Island
South Coast Fisheries, Inc., Peter A. Kuglis	Terminal Island
South Pacific Canning Co., M. D. Marsh	Long Beach
Southern Calif. Fish Corp., G. K. Breitenstein	Terminal Island
Terminal Island Sea Foods, Ltd., Herbert C. Davis	Terminal Island
Van Camp Sea Food Co., Gilbert C. Van Camp	Terminal Island
West Coast Packing Corp., Albert Vignolo	Long Beach
Wilmington Fisheries, Emil Guerrero	Wilmington

SAN DIEGO DISTRICT

American Processing Co., Lawrence Oliver	San Diego
High Seas Tuna Packing Co., Earl Nielsen	Pt. Loma
Westgate-Sun Harbor Co., W. Wade Ambrose and Jack Crivello	San Diego

LOWER CALIFORNIA (MEXICO)

La Industrial Ensenada, Arturo Paredes	Ensenada
Pesquera del Pacifico S. de R. L., J. A. Marales	Sauzal

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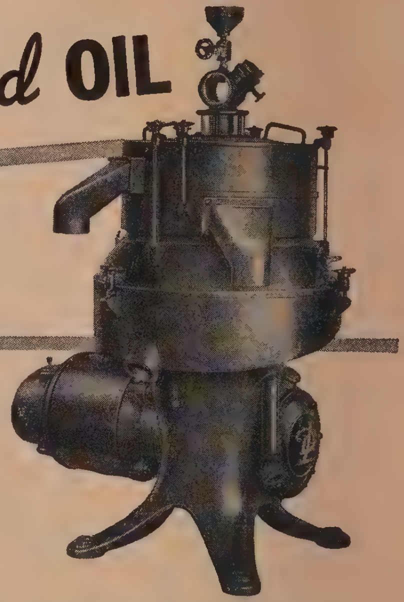

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FISH OIL SEPARATORS

PACIFIC COAST SARDINE OR PILCHARD CATCH

(EACH SEASON INCLUDES JUNE THROUGH THE FOLLOWING MAY.) *

Season	British Columbia	Washington	Oregon	Total Pacific Northwest	CALIFORNIA						Grand Total	Calif. Percent of Total
					Floating Plants	San Francisco	Monterey	San Pedro	San Diego	Total California		
1916–17	...	...	...	...	...	...	7,710	17,380	2,440	**27,530**	**27,530**	100
1917–18	80	...	...	**80**	...	70	23,810	41,340	7,360	**72,580**	**72,660**	100
1918–19	3,640	...	...	**3,640**	...	450	35,750	32,530	6,810	**75,540**	**79,180**	95
1919–20	3,280	...	...	**3,280**	...	1,000	43,040	16,580	6,410	**67,030**	**70,310**	95
1920–21	4,400	...	...	**4,400**	...	230	24,960	11,740	1,520	**38,450**	**42,850**	90
1921–22	990	...	...	**990**	...	80	16,290	19,220	910	**36,500**	**37,490**	97
1922–23	1,020	...	...	**1,020**	...	110	29,210	33,170	2,620	**65,110**	**66,130**	98
1923–24	970	...	...	**970**	...	190	45,920	35,040	2,780	**83,930**	**84,900**	99
1924–25	1,370	...	...	**1,370**	...	560	67,310	96,330	8,820	**173,020**	**174,390**	99
1925–26	15,950	...	...	**15,950**	...	560	69,010	61,990	5,710	**137,270**	**153,220**	90
1926–27	48,500	...	...	**48,500**	...	3,520	81,860	64,720	2,110	**152,210**	**200,710**	76
1927–28	68,430	...	...	**68,430**	...	16,690	98,020	67,900	4,650	**187,260**	**255,690**	73
1928–29	80,510	...	...	**80,510**	...	13,520	120,294	119,250	1,420	**254,484**	**334,994**	76
1929–30	86,340	...	...	**86,340**	...	21,960	160,050	140,540	2,620	**325,170**	**411,510**	79
1930–31	75,070	...	...	**75,070**	10,960	25,970	109,620	38,490	80	**185,120**	**260,190**	71
1931–32	73,600	...	...	**73,600**	31,040	21,610	69,080	42,660	260	**164,650**	**238,250**	69
1932–33	44,350	...	...	**44,350**	58,790	18,630	89,600	83,600	60	**250,680**	**295,030**	85
1933–34	4,050	...	...	**4,050**	67,820	36,340	152,480	125,050	1,750	**383,440**	**387,490**	99
1934–35	43,000	...	...	**43,000**	112,040	69,000	230,860	178,820	4,860	**595,580**	**638,580**	93
1935–36	45,320	...	26,230	**71,550**	150,830	76,150	184,470	138,400	10,650	**560,500**	**632,050**	89
1936–37	44,450	6,550	14,200	**65,200**	235,610	141,100	206,710	138,110	4,590	**726,120**	**791,320**	92
1937–38	48,080	17,200	16,660	**81,940**	67,580	133,720	104,930	109,950	380	**416,560**	**498,500**	84
1938–39	51,770	26,480	16,990	**95,240**	43,890	201,200	180,990	146,400	2,780	**575,260**	**670,500**	86
1939–40	5,520	17,850	22,330	**45,700**	...	212,450	227,870	101,820	110	**542,250**	**587,950**	92
1940–41	29,660	820	3,200	**33,680**	...	118,090	165,700	175,590	1,200	**460,580**	**494,260**	93
1941–42	60,460	17,090	16,500	**94,050**	...	186,590	250,290	148,910	1,580	**587,370**	**681,420**	86
1942–43	65,880	570	1,880	**68,330**	...	115,880	184,400	201,510	2,870	**504,660**	**572,990**	88
1943–44	83,740	10,540	1,820	**96,100**	...	126,510	213,620	135,310	2,690	**478,130**	**574,230**	83
1944–45	53,380	20	...	**53,400**	...	136,600	237,250	178,290	2,770	**554,910**	**608,310**	91
1945–46	34,300	2,390	90	**36,780**	...	84,100	145,520	173,110	950	**403,680**	**440,460**	92
1946–47	3,990	6,140	3,901	**14,040**	...	2,870	31,240	194,720	4,770	**233,600**	**247,640**	94
1947–48	500	1,357	6,925	**8,782**	...	383	14,492	92,950	2,412	**110,237**	**119,019**	93
1948–49	...	...	5,506	**5,506**	...	1,688	52,203	124,410	2,940	**181,241**	**187,334**	97
*1949	...	...	...	...	...	16,387	132,450	150,915	...	**299,752**	**299,752**	100

These records of catch have been supplied by the Canadian Bureau of Statistics and the Province of British Columbia, the Washington Department of Fisheries, the Fish Commission of Oregon, the California Division of Fish and Game, and for the floater catch by the United States Fish and Wildlife Service.

* Figures in the final line of the table are for the calendar year 1949, and include fish caught in the spring of that year. San Diego landings for 1949 included with San Pedro area.

tect the fish, and long enough to insure a maximum safe catch.

The summer pack of sardines would be eliminated.

Industry Groups Offer Programs

The San Francisco Sardine Association studied Mr. Croker's letter and following a number of meetings decided it would ask legislation providing for the plant system of allocation. However, this was not the unanimous decision of all sardine plant operators in the San Francisco area.

The Monterey Fish Processors Association, following a number of meetings came up with a program which George C. Clemens, executive secretary of the group, said had the backing of Monterey fishermen, boat owners, plant workers and plant operators. This called for legislation setting the northern California sardine season from Aug. 1 to Dec. 15, and in southern California from Sept. 1 to Jan. 15.

In other words, Mr. Clemens said that the Monterey sardine industry was in favor of cutting down the potential fishing effort from 12 to 6½ months. He said that this would result in a 25-30% reduction in fish to be landed. There would be a five day fishing week, and a five day light of the moon period.

When the season was closed there would be no sardine fishing at all, not even for bait. This program was concurred in by the AFL Fish Cannery Workers of the Pacific, Monterey, San Pedro, San Diego, and San Francisco, affiliate of the AFL Seafarer's International Union of North America.

Mr. Clemens said that the Monterey fishing industry as a whole was united in being opposed to any type of quota or bag limit.

The CIO International Fishermen and Allied Workers Union worked on a legislative program that would give the Fish and Game Commission certain plenary powers for two years, but these powers would be specified in the legislation. The principal power would be setting the tonnage to be taken for all purposes of sardine and mackerel—not less than 200,000 tons of sardines during the season, and not less than 35,000

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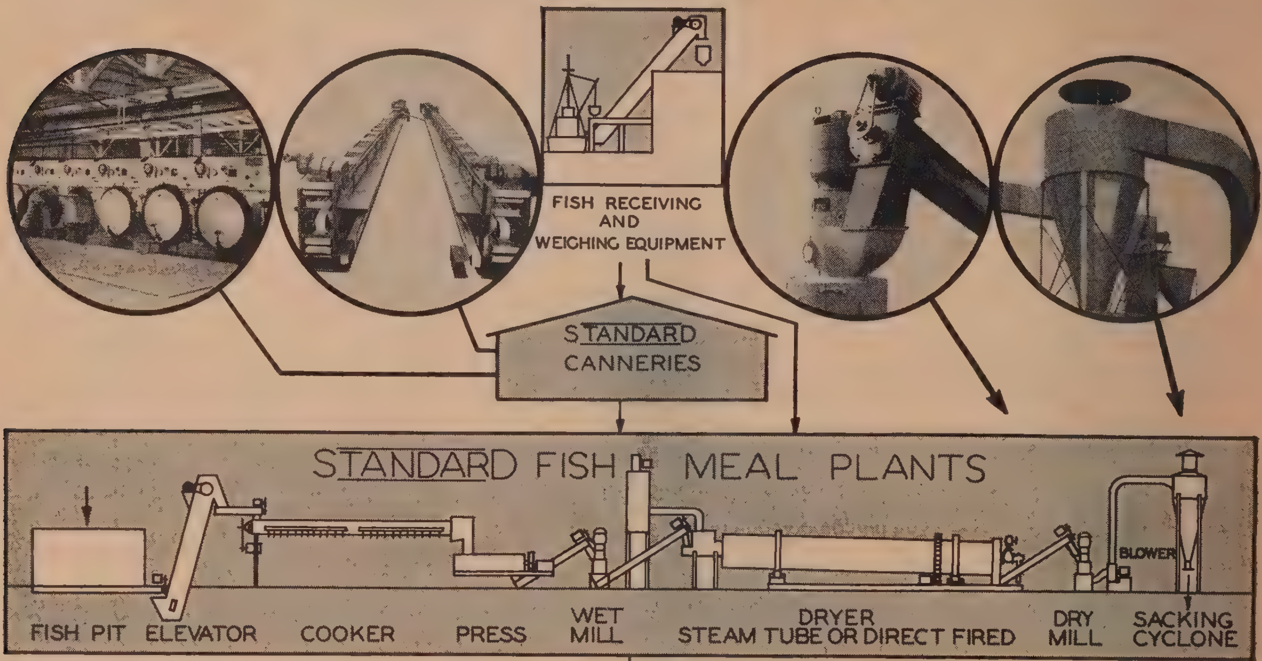
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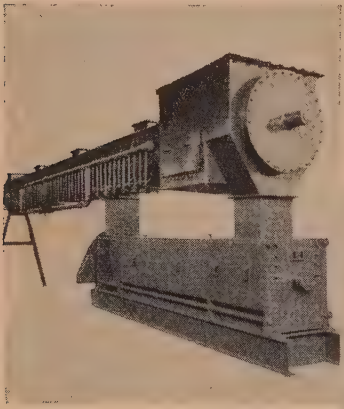

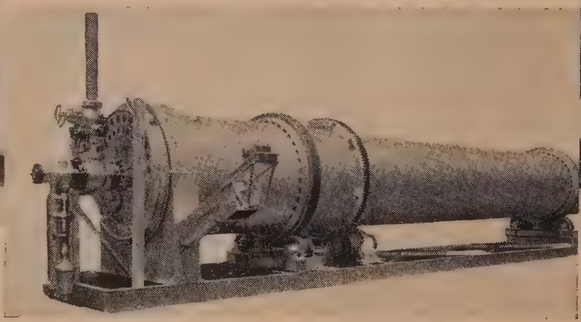

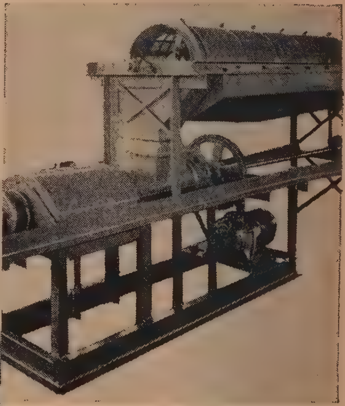

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OIL and MEAL

PACIFIC NORTHWEST FISH BY-PRODUCTS

(Not Including Vitamin Oils)

Year	Oregon					Washington					Year
	Number Active Plants	Fish Meal, Tons	Sardine or Pilchard Oil, Gallons	Other Fish Oils, Gallons	Total Fish Oils, Gallons	Number Active Plants	Fish Meal, Tons	Sardine or Pilchard Oil, Gallons	Other Fish Oils, Gallons	Total Fish Oils, Gallons	
1949	3	1,786	...	26,700	26,700	5	3,200	...	207,000	207,000	1949
1948	4	1,228	114,928	...	114,928	9	3,269	...	210,923	210,923	1948
1947	4	2,040	228,558	17,626	246,184	8	1,631	44,800	156,001	200,801	1947
1946	3	1,633	120,336	13,391	133,727	10	3,826	186,690	154,733	341,423	1946
1945	3	907	...	26,000	26,000	7	2,894	79,464	141,754	221,218	1945
1944	2	1,200	...	50,000	50,000	5	901	960	64,500	65,460	1944
1943	3	1,365	32,000	26,000	58,000	6	2,901	277,627	78,000	355,627	1943
1942	2	861	25,014	8,200	33,214	6	2,003	27,787	168,600	196,387	1942
1941	4	2,969	398,235	...	398,235	11	4,168	400,102	152,389	552,491	1941
1940	5	592	114,717	...	114,717	11	1,451	35,656	145,174	180,830	1940
1939	6	3,933	833,300	...	833,300	8	4,026	672,066	103,500	775,566	1939
1938	6	2,933	718,830	...	718,830	10	4,986	1,153,339	74,392	1,227,731	1938
1937	5	2,775	689,159	...	689,159	6	3,886	808,396	125,400	933,797	1937
1936	9	2,864	481,512	70,985	552,497	4	1,710	193,467	82,800	276,267	1936
1935	7	4,763	1,104,389	39,985	1,144,374	2	1,032	...	110,960	110,960	1935

tons of mackerel for the entire state.

There would be a uniform starting date for the season for the entire state, and as soon as the quota of sardines and mackerel was landed all fishing for the species for any purpose at all, would cease. A proposed starting date for the entire state for the sardine and mackerel season was Sept. 1.

Should there be a great abundance of fish the Fish & Game Commission would have authority to increase the bag limit. A 7" size limit was being considered.

Research Operations Initiated

In March "Operation Sardine" really got under way when four vessels, nearly 100 investigators, backed by three governmental agencies set out to find out:

1. When can sardine fishing be expected to recover?
2. Is there a way to predict seasons and long range trends?

First to set sail in the two year survey was the Bureau of Marine

Pacific Coast Fish Meal — 1916-1949

Year—	Alaska (Tons)	Washington (Tons)	Oregon (Tons)	California (Tons)	British Columbia (Tons)	Total (Tons)
1916	1,594	...	100	535	...	2,229
1917	1,858	3,186	190	3,481	1,220	9,935
1918	600	1,885	95	8,734	1,977	13,291
1919	1,218	1,114	350	11,153	1,847	15,682
1920	3,928	352	136	8,856	466	13,738
1921	678	1,354	300	6,317	489	9,138
1922	1,958	1,216	40	9,027	911	13,152
1923	3,635	992	150	9,238	823	14,838
1924	5,560	607	275	15,328	1,709	23,479
1925	9,302	1,395	300	22,936	4,551	38,484
1926	12,093	822	325	15,767	10,543	39,550
1927	7,704	956	500	21,374	16,659	47,193
1928	10,713	670	425	28,390	15,331	55,529
1929	13,353	1,554	460	43,496	21,208	80,071
1930	12,847	1,046	400	36,276	17,542	68,111
1931	8,704	714	228	22,440	19,561	51,647
1932	10,168	757	143	27,500	15,450	54,018
1933	11,435	1,085	210	58,879	6,752	78,361
1934	14,341	876	280	95,193	12,654	123,344
1935	15,818	1,032	4,763	103,772	16,090	141,475
1936	15,051	1,687	2,864	126,143	21,948	167,693
1937	19,636	4,012	2,775	93,897	25,630	145,950
1938	17,066	4,977	2,933	97,451	21,006	143,433
1939	17,477	4,651	3,933	105.169	19.468	150,698
1940	8,144	1,528	592	86,137	31,899	128,300
1941	11,740	4,168	2,969	102,812	24,312	146,001
1942	3,540	1,608	861	79,003	26,474	111,486
1943	7,280	3,231	1,365	86,151	24,919	122,946
1944	8,777	901	1,200	96,853	20,852	128,583
1945	11,188	2,894	907	78,653	21,123	114,769
1946	15,869	3,826	1,633	52,895	10,561	84,784
1947	14,232	1,631	2,040	37,065	12,773	62,611
1948	12,683	3,269	1,228	44,,450	31,087	92,717
1949	3,608	3,200	1,786	61,468	33,237	103,299

ALASKA FISH BY-PRODUCTS

(Not Including Vitamin Oils)

Year	Southeast Alaska			Prince William Sound			Kodiak Island Area			All Alaska		
	Number Active Plants	Fish Oils, Gallons	Fish Meal, Tons	Number Active Plants	Fish Oils, Gallons	Fish Meal, Tons	Number Active Plants	Fish Oils, Gallons	Fish Meal, Tons	Number Active Plants	Fish Oils, Gallons	Fish Meal, Tons
1949	5	651,186	3,269	1	...	140	†3	16.900	199	9	686.086	3,608
1948	8	623,814	2,631	4	919,437	2,974	†7	1,959,378	7,078	19	3,501,631	12,483
1947	8	1,762,648	6,727	...	...	...	6	2,017,027	7,505	14	3,779,675	14,232
1946	5	1,359,409	6,860	2	453,962	2,066	4	1,731,536	6,942	11	3,544,907	15,868
1945	5	1,110,973	4,507	2	295,951	1,541	4	1,328,249	5,140	11	2,835,173	11,188
1944*	...	...	...	...	...	...	...	...	...	8	2,355,010	8,777
1943*	...	...	...	...	...	...	...	...	...	8	1,644,142	7,280
1942	1	60,000	700	1	62,518	270	2	770,000	2,570	4	892,518	3,540
1941	1	80,500	555	6	1,221,242	5,408	4	1,592,506	5,777	11	2,894,248	11,740
1940	1	40,000	450	6	1,290,857	4,720	3	808,822	2,973	11	2,139,679	8,143
1939	5	882,317	4,042	7	2,227,087	7,838	6	1,729,127	5,617	18	4,846,631	17,497
1938	6	951,109	4,489	6	2,403,797	8,847	4	1,224,273	3,637	16	4,593,579	16,973
1937	9	2,024,315	8,725	6	2,175,423	7,102	5	1,388,300	3,809	20	5,588,038	19,636
1936	6	1,421,470	6,487	6	1,426,323	5,546	5	975,344	3,018	17	3,823,137	15,051
1935*	...	...	...	...	...	...	...	...	...	19	3,853,243	15,818

*Data for separate areas of Alaska not available

†Includes one on Cook Inlet.

OREGON VITAMIN FISH LIVER LANDINGS

Year	SHARK				Ling Cod	Halibut	Sablefish	"True" Cod	Miscel. Cod	Miscel. Other	**Total**
	Dogfish	Soupfin	Bluefin	Miscel.							
1942..	156,069	111,182	3,626	5,646	21,862	12,240	2,836	367	187	14,682	**328,697**
1943..	283,817	272,580	17,154	5,496	21,759	10,818	9,142	503	253	2,585	**624,107**
1944..	521,346	190,139	5,821	1,926	37,889	10,269	15,333	449	2,128	1,579	**786,879**
1945..	266,402	70,472	10,948	39	29,228	8,455	10,851	440	6,763	1,012	**404,610**
1946..	373,025	102,753	38,910	469	52,170	4,183	19,991	3,017	1,730	10,730	**606,978**
1947..	251,578	61,857	3,328	1,273	15,203	6,324	897	190	4,224	1,077	**345,951**
1948..	558,808	48,975	22,146	2,133	25,379	12,811	5,741	....	14,095	41,225	**731,313**
1949..	324,412	20,916	1,242	19,447	11,446	5,212	2,733	....	1,155	855	**387,418***

* January through September.

Fisheries *N. B. Scofield,* 100′ research vessel, to be engaged in a series of off shore investigations.

Soon the *Scofield* was joined by the 120′ *Crest* of the Scripps Institution of Oceanography and the *Crest* was followed by Scripp's *Horizon,* a 140 footer. Later came the *Black Douglas,* formerly a luxury yacht, and now operated by the U.S. Fish & Wildlife Service.

The *Horizon* was operating out of San Francisco; *Crest* explored southern California waters; the *Scofield* was in Mexican waters; and the *Black Douglas* was to work off the Northern California and Oregon coasts.

The vessels were to cruise as far off shore as 500 miles, and were to range Pacific waters from the Co-

VITAMIN LIVER LANDINGS AT SEATTLE—1947-1949

Month	1949				1948				1947			
	Dogfish Livers Pounds	**Lingcod Livers** Pounds	**Soupfin Livers** Pounds	**Misc. Livers** Pounds	**Dogfish Livers** Pounds	**Lingcod Livers** Pounds	**Soupfin Livers** Pounds	**Miscel. Livers** Pounds	**Dogfish Livers** Pounds	**Lingcod Livers** Pounds	**Soupfin Livers** Pounds	**Miscel. Livers** Pounds
January	101,603	18,779	20,256	212,338	70,898	9,258	5,293	7,143	95,705	5,682	5,076	35,603
February	76,182	10,471	24,745	109,120	74,821	9,237	14,272	16,856	83,644	5,200	17,356	41,363
March	167,125	6,989	25,239	168,219	79,534	16,646	8,251	35,000	84,514	6,145	2,389	59,182
April	197,041	8,709	5,359	104,634	263,542	5,355	17	16,033	393,002	3,225	....	65,461
May	495,774	10,163	10,473	253,642	266,019	8,373	302	91,489	199,137	5,969	2	14,119
June	220,066	19,783	29,025	515,283	108,058	9,180	....	72,817	214,718	7,222	24	27,886
July	93,027	16,029	45,337	424,136	61,744	5,783	10,084	77,004	178,807	10,350	8,776	41,647
August	40,284	28,390	21,710	268,893	58,136	11,767	7,243	49,446	85,339	2,603	9,717	87,108
September	46,822	20,396	14,062	321,186	79,088	12,571	6,925	86,171	105,742	7,940	8,199	68,945
October	72,459	17,672	10,441	268,317	117,853	11,400	5,282	50,565	67,939	6,181	2,083	47,939
November	108,526	13,461	21,399	153,632	124,792	25,658	9,043	117,175	94,768	5,898	2,540	33,923
December	....	....	....	....	191,886	22,168	4,835	160,079	179,013	7,049	2,629	14,697
Total	**1,618,909**	**170,842**	**228,046**	**2,799,400**	**1,496,371**	**147,396**	**71,547**	**779,778**	**1,782,328**	**73,464**	**58,791**	**537,873**

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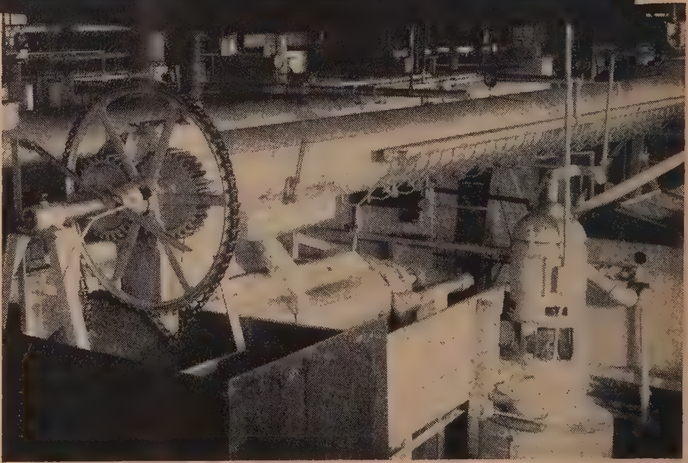

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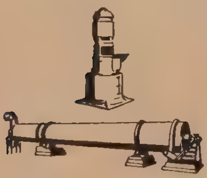

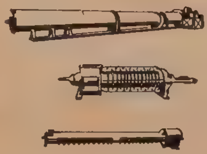

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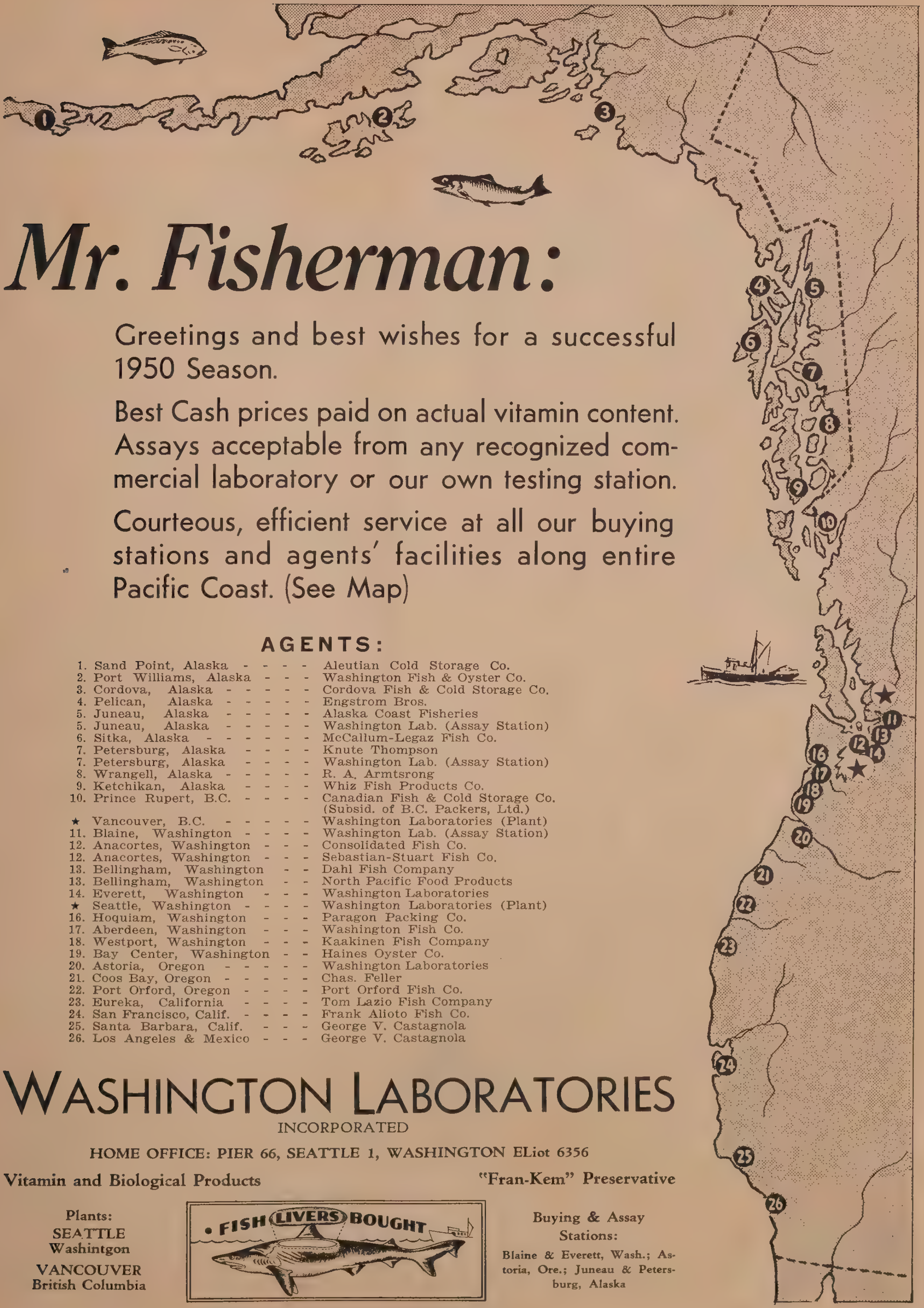

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4. Pelican, Alaska	Engstrom Bros.
5. Juneau, Alaska	Alaska Coast Fisheries
5. Juneau, Alaska	Washington Lab. (Assay Station)
6. Sitka, Alaska	McCallum-Legaz Fish Co.
7. Petersburg, Alaska	Knute Thompson
7. Petersburg, Alaska	Washington Lab. (Assay Station)
8. Wrangell, Alaska	R. A. Armtsrong
9. Ketchikan, Alaska	Whiz Fish Products Co.
10. Prince Rupert, B.C.	Canadian Fish & Cold Storage Co. (Subsid. of B.C. Packers, Ltd.)
★ Vancouver, B.C.	Washington Laboratories (Plant)
11. Blaine, Washington	Washington Lab. (Assay Station)
12. Anacortes, Washington	Consolidated Fish Co.
12. Anacortes, Washington	Sebastian-Stuart Fish Co.
13. Bellingham, Washington	Dahl Fish Company
13. Bellingham, Washington	North Pacific Food Products
14. Everett, Washington	Washington Laboratories
★ Seattle, Washington	Washington Laboratories (Plant)
16. Hoquiam, Washington	Paragon Packing Co.
17. Aberdeen, Washington	Washington Fish Co.
18. Westport, Washington	Kaakinen Fish Company
19. Bay Center, Washington	Haines Oyster Co.
20. Astoria, Oregon	Washington Laboratories
21. Coos Bay, Oregon	Chas. Feller
22. Port Orford, Oregon	Port Orford Fish Co.
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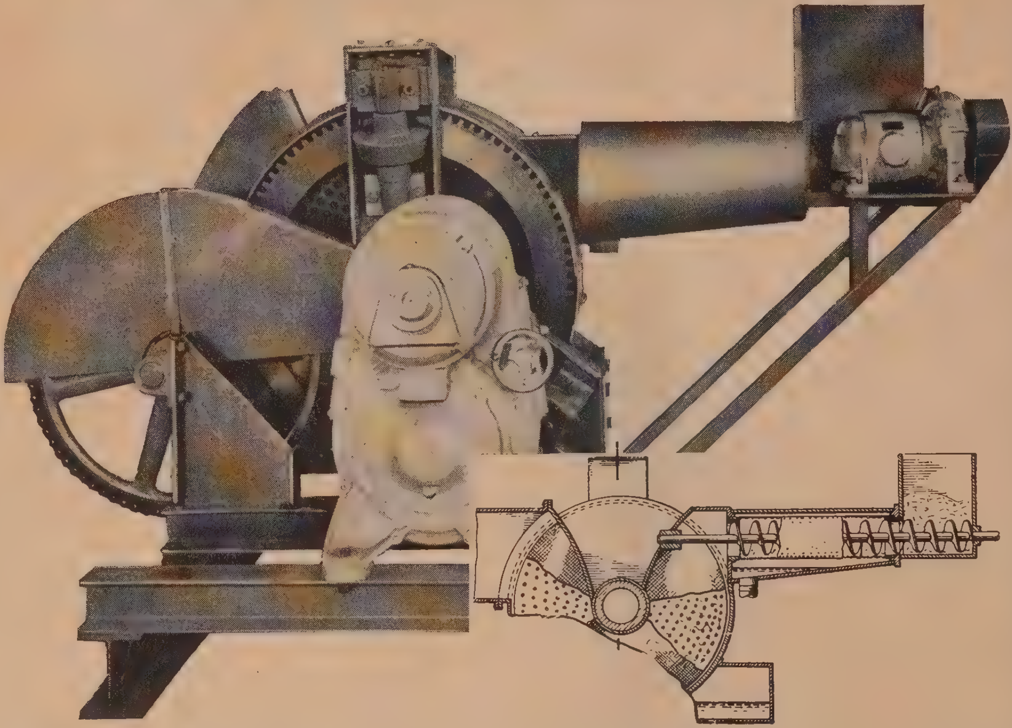

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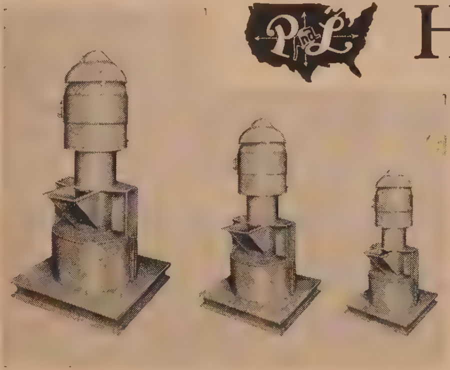

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1949—California Miscellaneous Fish Oil and Meal—1949

Month	San Pedro Area		San Diego Area		Northern California		California Totals	
	Oil, Gallons	Meal, Tons	Oil, Gallons	Meal, Tons	Oil, Gallons	Meal, Tons	Oil, Gallons	Meal, Tons
January	11,076	264	12,866	411	2,022	52	25,964	727
February	6,212	207	6,272	290	....	....	12,484	497
March	8,589	492	11,487	624	....	....	20,076	1,116
April	5,656	597	16,601	912	....	....	22,257	1,509
May	8,826	697	17,705	988	....	....	26,531	1,685
June	11,351	780	22,780	1,050	....	....	34,131	1,830
July	23,042	882	32,625	1,016	....	....	55,667	1,898
August	43,154	1,222	43,126	1,454	....	6	86,280	2,682
September	44,654	1,210	44,706	1,549	4,909	56	94,269	2,815
October	25,012	2,548	36,132	1,054	6,453	80	67,597	3,682
November	16,974	401	5,599	1,005	2,102	17	24,675	1,423
December	25,000	1,200	35,000	1,000	1,000	15	61,000	2,215
Totals	244,713	10,300	284,899	11,353	16,486	226	530,931	22,078

lumbia river to Cedros Island. What was to be sought was the extent of sardine spawning waters and the relationships between survival of eggs, young, and oceanographic conditions.

Marine biologists and oceanographers were to study water temperature, salinity, oxygen, and phospate concentrations, amount and type of plankton organisms, chlorophyll concentration and number of sardine eggs and young. Water samples were to be taken from various depths between the surface and 3,000′.

Industry Committee Advises

Appointed by the Governor was the nine-man Marine Research Committee headed by Julian G. Burnette, San Francisco, president of Richmond Fisheries, which is leading and coordinating this research work.

Richard S. Croker, Chief, Bureau of Marine Fisheries, and a member of the Marine Research Committee has attributed the decline of the Pacific Coast sardine population in the past few years to "a combination of overfishing with other factors."

Many guesses have been made as to what the other factors might be. Some of the guesses, both scientific and non-scientific are:

1. The disturbance caused by the Bikini atom bomb test.
2. Lack of salt in the water.
3. Too much salt in the water.
4. Low water temperature.
5. High water temperature.
6. Lack of plankton.
7. Noise of practice firing by naval guns.
8. Weather cycles.
9. Invasion of sardine-eating fish, birds, and animals from the north and south.
10. Tidal waves.
11. Dumping of surplus war munitions off shore.

What the four vessels, the 100 re-

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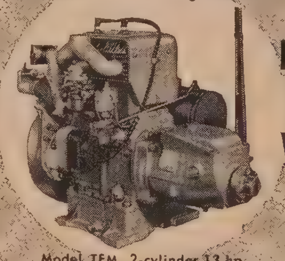

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BARBARA LEE

OREGON VITAMIN FISH LIVER LANDINGS

Species	January	February	March	April	May	June	July	August	September	October	November	December	Total
1949													
Lingcod	1,956	1,169	1,694	1,871	738	969	924	973	1,152				11,446
Halibut	25			142	1,783	2,292	510	383	77				5,212
Sablefish	79				121	113	771	730	919				2,733
Cod "Misc."	215	54	42	175	302	137	55	135	40				1,155
Shark													
Dogfish	49,261	3,400	52,506	179,003	36,279	1,966	349	1,512	136				324,412
Soupfin	7,764	5,104	1,268	728	4	35	2,656	1,819	1,538				20,916
Bluefin	122			110	46				964				1,242
Miscellaneous	1,135	2,211	1,444	1,917	624	4,295	1,914	3,189	2,718				19,447
Livers, Misc.					248		291	316					855
Totals	**60,557**	**11,938**	**56,954**	**183,946**	**40,145**	**9,807**	**7,470**	**9,057**	**7,544**				**387,418**
1948													
Lingcod	2,603	624	2,145	1,830	2,515	3,919	1,239	1,602	2,026	2,365	1,923	2,588	25,379
Skate		35	70			94					56	1,584	1,839
Halibut			1		48	2,903	1,929	1,310	753	37	43	78	12,811
Sablefish			23		35	598	786	2,530	1,024	139	97	509	5,741
"Cod," Misc.	754	607	282	232			11,129	78	139	296	468	110	14,095
Shark—													
Dogfish	23,121	14,171	35,439	265,874	45,791	9,836	9,083	7,948	14,896	35,472	80,313	16,864	558,808
Soupfin	1,737	1,085	5,560	1,719	274	2,110	6,228	8,216	12,640	5,123	3,109	1,174	48,975
Bluefin	1,369	621		755		431	756	3,020	2,605	5,997	5,330	1,262	22,146
Miscellaneous	820		337							244	732		2,133
Livers, Misc.	58			760		4,022	2,471	29,860	560	525	435	695	39,386
Totals	**31,855**	**18,740**	**46,576**	**271,170**	**48,663**	**23,913**	**33,621**	**54,564**	**34,643**	**50,198**	**92,506**	**24,864**	**731,313**
1947													
Lingcod	1,553	866	1,067	1,417	1,307	712	1,256	846	807	2,603	624	2,145	15,203
Skate	83			42	262						35	70	492
Halibut			1		81	260	10	262		1,393	1,597	2,720	6,324
Sablefish	197			76	182	145	192	82				23	897
Sole													
True Cod				28	119							43	190
Miscellaneous Cod	63	307	68	492	95	656	287	97	559	754	607	239	4,224
Miscellaneous	392		19	111		63							585
Shark:													
Dogfish	55,336	13,653	37,819	27,900	5,541	8,826	7,885	2,870	19,017	23,121	14,171	35,439	251,578
Soupfin	10,195	13,943	5,160	270	21	615	3,396	9,097	10,778	1,737	1,085	5,560	61,857
Bluefin	81						175	579	503	1,369	621		3,328
Basking												337	337
Bonita										820			820
Miscellaneous			47				69						116
Totals	**67,900**	**28,769**	**44,181**	**30,336**	**7,608**	**11,277**	**13,270**	**13,833**	**31,664**	**31,797**	**18,740**	**46,576**	**345,951**
1946													
Lingcod	892	1,081	477	3,141	911	2,495	2,348	4,872	23,011	3,746	2,575	6,621	52,170
Skate					40		39	171				347	597
Halibut					873	1,296	749	541	116	233	296	79	4,183
Sablefish		383		1	40	1,604	3,277	2,747	864	4,113	5,091	1,921	19,991
Sole													
True Cod	9		4	29	55	1,020		1,133	197	73	497		3,017
Miscellaneous Cod	4			43	19	75	26	273	1,082	18		190	1,730
Miscellaneous				5	587	583	49	4,931	49	2,426	908	595	10,133
Shark:													
Dogfish	16,992	14,290	9,208	27,907	72,028	18,102	3,436	6,000	45,548	12,427	88,772	58,315	373,025
Soupfin		2,960	6,538	2,350	70	48,849	2,006	15,914	7,080	6,965	6,502	3,519	102,753
Bluefin	5,485					359	1,040	8,098	10,898	6,406	6,246	378	38,910
Basking													
Bonita												42	42
Miscellaneous	39				154				154			80	427
Totals	**23,421**	**18,714**	**16,227**	**33,476**	**74,777**	**74,383**	**12,920**	**44,680**	**88,999**	**36,407**	**110,887**	**72,087**	**606,978**
1945													
Lingcod	475	333	202	1,129	1,466	2,495	3,984	3,309	5,138	3,494	5,373	1,830	29,228
Skate													
Halibut					3,702	2,746	749	944	232	82			8,455
Sablefish					53	1,671	2,754	327	2,615	1,446	1,092	893	10,851
Sole	82												82
True Cod				376	8	31	19					6	440
Miscellaneous Cod	152				23	114	272	83	12	278	5,423	406	6,763
Miscellaneous				528	22	115	79			107	79		930
Shark:													
Dogfish	14,431	4,558	20,040	10,153	13,097	34,698	26,266	45,900	13,031	22,592	1,312	60,324	266,402
Soupfin	10,054	1,465	2,150	795	28	1,982	8,993	9,312	3,972	8,160	1,314	22,247	70,472
Bluefin	56					3	569	1,333	592	8,031	364		10,948
Basking													
Bonito			18										18
Miscellaneous								21					21
Totals	**25,250**	**6,356**	**22,410**	**12,981**	**18,399**	**43,855**	**43,685**	**61,229**	**25,592**	**44,190**	**14,957**	**85,706**	**404,610**

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Year	Number of Active Plants	Fish Meal Tons	Herring Oil Gallons	Sardine or Pilchard Oil Gallons	Other Fish Oils Gallons	**Total Fish Oils Gallons**	Year
1949	20	33,237	3,438,654	......	180,000	**3,618,654**	1949
1948	20	29,636	3,178,607	......	172,368	**3,350,976**	1948
1947	17	12,773	1,551,165	......	227,162	**1,778,327**	1947
1946	13	9,469	896,615	88,718	293,486	**1,278,819**	1946
1945	15	21,123	1,344,461	1,307,211	223,651	**2,875,323**	1945
1944	15	20,852	1,018,597	2,373,013	156,812	**3,548,422**	1944
1943	16	29,109	814,156	2,554,996	308,500	**3,677,652**	1943
1942	16	22,814	686,516	1,309,793	456,013	**2,452,322**	1942
1941	16	16,494	599,885	1,845,164	......	**2,445,049**	1941
1940	14	32,216	2,131,797	1,052,912	252,259	**3,436,968**	1940
1939	15	17,534	1,383,341	199,957	298,681	**1,881,979**	1939
1938	15	17,079	689,630	2,513,990	282,569	**3,486,189**	1938
1937	12	22,011	1,230,960	2,026,662	354,450	**3,612,072**	1937
1936	12	17,578	667,579	1,411,331	343,042	**2,421,952**	1936
1935	11	12,488	116,320	1,951,328	258,131	**2,325,779**	1935

searchers, and the million dollars are expected to find out, is just what is the answer.

Legislative Program Adopted

In April California's divided sardine faction—North vs. South—sat down in a smoke-filled room in Sacramento and after two hours of debate finally worked out amendments to a bill by Assemblyman Vincent Thomas, San Pedro, that were satisfactory to most of the industry and one which they would support.

The meeting had been called by Mr. Thomas, who acted as chairman. The amendments to a bill, which had already been introduced by Mr. Thomas provided:

1. Continuation of the split season on a permanent basis, from Aug. 1 to Jan. 15 in central and northern California and from Oct. 1 to Feb. 1 in the south—thus cutting one month off the end of the season as it formerly stood in both areas.
2. Elimination of the summer pack for two years, effective with the signing of the bill by the Governor.
3. No size limit on fish.
4. No power to the Fish & Game Commission to extend the seasons.

The proposed legislation was shortly made into law, and as it now stands the summer sardine pack is ended. In southern California the season opens Oct. 1, and closes Feb. 1; in northern California, Aug. 1—Jan. 15. The elimination of the summer pack clause may be reconsidered after two years ending in June, 1951.

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Reduction Tonnage Cut Sharply

In June the Fish & Game Commission cut the allotted tonnage of sardines to be taken for reduction purposes to 50,000 for the 1949-50 season—half of that of the previous season.

The commission approved 101 applications to reduce sardines despite the recommendations of Richard S. Croker, chief, Bureau of Marine Fisheries, who asked that all reduction permits be denied in the interests of conservation.

One of the main objections to the tonnage cut lay in the allocation machinery temporarily set up by the commission. Under the ruling which is subject to review, 70% of the total tonnage allotment goes to straight reduction plants, 30% to canneries with reduction plants.

Cannery owners objected strenuously to the ruling. One estimated that under this ruling his plant would be unable to reduce more than three loads of fish that were unsuitable for canning. The allocation ruling, of course did not apply to the reduction of any fish by-products from normal cannery offal.

In July the smaller sardine canners felt that they had won an important victory following action taken that month by the Fish & Game Commission when that body increased the tonnage of sardines to be taken for reduction purposes for the season to 75,000 tons, and agreed to divide the tonnage equally between canners and straight reduction plants.

Price Dispute Delays Opening

Hopes of northern California's sardine industry for a normal season after four failures appeared to be bright in mid-July.

For one thing, boats seeking bait out of San Francisco reported many more sardines seen than in years past.

Another thing that encouraged San Francisco operators was the possibility that more boats might be coming to California to seek sardines. A number of San Francisco sardine operators have felt that there would have been more fish brought into the port in the past few seasons, had there been more boats out looking for them.

What was to be the price of California sardines to the fishermen? That was the $64 question to the industry during mid-July.

It had been reported that the price of sardines in the Pacific Northwest was $30 per ton for fish for reduction.

In July some observers seemed to feel that California fishermen's ideas were around $50-60, while processors didn't feel that they could pay more than $30-35.

Northern California's sardine season was officially open Aug. 1, but nothing happened, due to failure of fishermen, boat owners, and operators to get together on the price of fish.

Plant workers and operators also had not come to an agreement about the terms of a new contract, although meetings were held between the AFL Fish Cannery Workers Union and the Monterey Fish Processors Association on the question of vacation benefits, the only point of disagreement holding up the signing of a contract.

Horace Mercurio, manager of the Monterey Purse Seine Association

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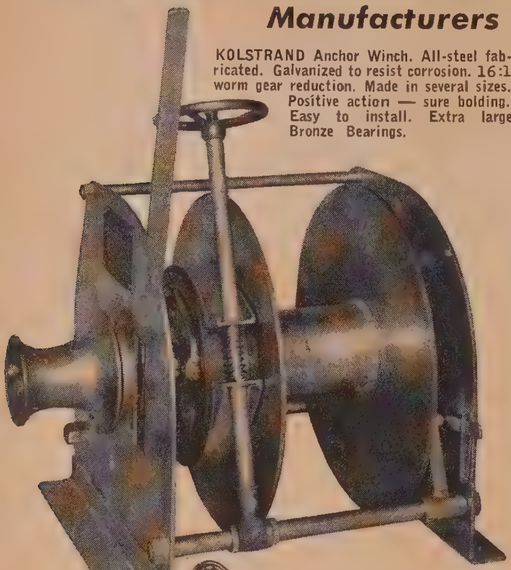

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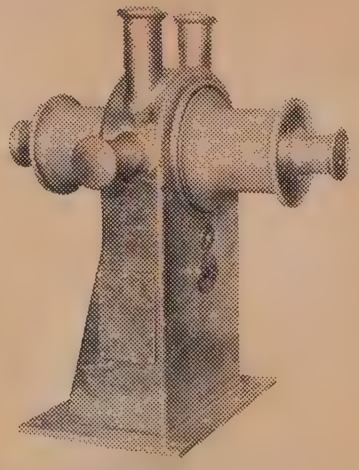

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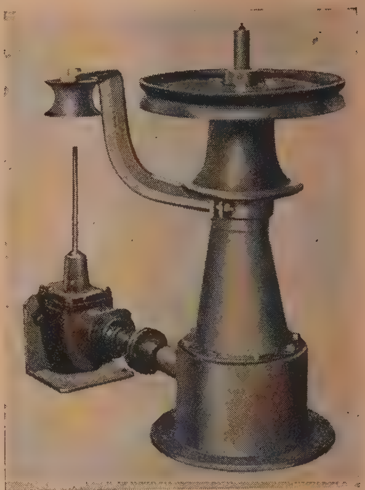

KOLSTRAND Halibut Gurdy, showing transmission hookup. All-steel fabricated. Galvanized to resist corrosion. Also available are various sizes and weights of sheaves and side rollers.

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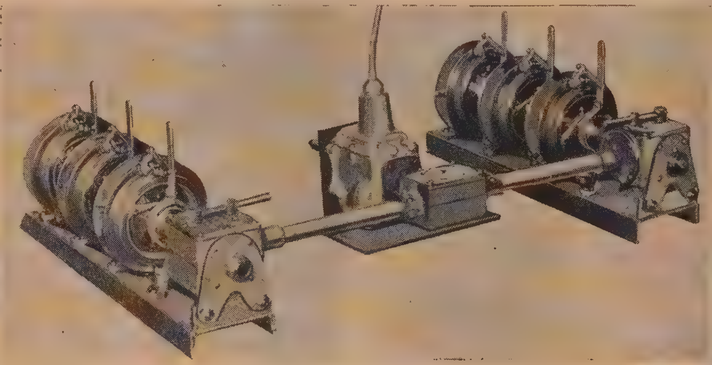

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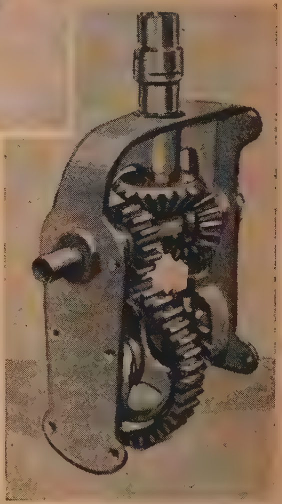

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- ★ Special Buckle Swivels
- ★ Galv. Main Pole Brackets
- ★ Bronze Swivel Bow Pole Brackets
- ★ Trolling Pole Cross Tree (Spreader)
- ★ Anchor Bow Rollers
- ★ Crab Hoists
- ★ Trolling Stabilizers

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4739 BALLARD AVENUE PHONE: SU. 7547 SEATTLE 7, WASHINGTON said that boat owners were negotiating their first contract with the processors since the 1941-42 season. During the war there was no contract because fishing was controlled by the government.

The boat owners were on record at the end of the 1948-49 season for a price of $50 per ton, and Mr. Mercurio said that price was still in effect, although conditions of the contract might change the price somewhat.

It was "on again, off again" for northern California's 1949-50 sardine season during September.

$40 Price Fails to Hold

The price had finally been settled at $40 per ton as the season got under way Aug. 22. After a week's fishing during which some 13,433 tons were landed at Monterey, and 1,998 tons at San Francisco, fishing suddenly halted at both ports when some processors in Monterey said a week of fishing had showed them that sardines were worth but $30 per ton. Other Monterey processors were willing to pay $40 per ton, and some seven of them signed up with boat owners at that price.

However, the sardine fleets remained at anchor. John Crivello, business agent for the Monterey Seine & Line Fishermen's Union AFL said that the fleet had not gone out for the seven processors that signed because orders from them had been too small.

San Francisco reduction plant operators had told fishermen that they couldn't afford to take fish for more than $30 per ton.

As the discussion went on the moon slid over into the light period and it was realized that no fishing would be done before Sept. 11 at the earliest.

Finally on Sept. 7 an offer was made to Monterery boat owners of $35 per ton, with daily limits of 57 tons per boat guaranteed. This offer was accepted by fishermen and boat owners, and the fleet sailed Sept. 11. Catches were good, some 3,700 tons on Sept. 12, and 3,000 tons, Sept. 13.

Price Adjusted to $32.50

Sardine fishing got underway again after the October light-of-the-moon period with prices scaled downward from $40 per ton when the season opened to $32.50 per ton as the boats put out the night of Oct. 11.

Many of San Francisco's reduction plants were closed during the season, while their permits for 742 tons were run in some other plant on the Bay.

One encouraging factor was that the fish were of uniformly high quality, with sizes running from 10 to 14".

The biggest day of the season was Sept. 26 when some 4,900 tons were landed in Monterey.

The season had started with boats operating on limits of 50 tons out of San Francisco, but some plants then raised the limit to 100 tons. Some 28 purse seiners, mostly from the Northwest, were fishing out of San Francisco.

As the season ended the price of $32.50 per ton of sardines appeared to be firm. During the 1948-49 season price of sardines had been around $67.50-$50 per ton. During the 1947-48 season prices ranged from $45 at the beginning of the season to $115 per ton as the "famine" year drew to a close.

During the 1946-47 season the price of sardines was $30 per ton, but it is reliably reported that some loads were landed at $60 per ton. And in Dec. of that year the price did go to $60.

Sardine Prices of Past Years

The price of sardines has ranged from a low of $4 per ton in 1932 to

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IMPORT ANALYSIS

Pacific Coast Fish Oil — 1916-1949

Year—	Alaska (Gallons)	Washington (Gallons)	Oregon (Gallons)	California (Gallons)	British Columbia (Gallons)	Total (Gallons)
1916	232,376	116,282	20,000	26,063	---- ----------	394,721
1917	231,142	205,511	25,000	176,293	49,784	686,730
1918	147,716	98,711	35,200	346,724	64,060	692,411
1919	170,340	90,921	25,000	514,262	65,945	866,468
1920	720,118	21,850	23,175	611,585	66,802	1,443,530
1921	99,948	170,008	48,000	336,738	53,640	708,334
1922	454,938	157,555	14,000	547,050	90,553	1,264,096
1923	915,143	135,145	24,000	951,888	196,381	2,242,557
1924	1,193,705	79,028	42,000	2,350,722	289,651	3,955,106
1925	2,391,832	97,890	47,400	3,150,041	1,020,607	6,707,770
1926	3,018.675	78,352	58,000	2,123,928	2,555,485	7,834,440
1927	2,067,041	81,801	65,000	2,618,490	3,863,347	8,695,679
1928	2,585,990	79,347	54,000	3,749,302	4,877,059	11,336,698
1929	3,415,154	131,059	62,000	6,548,126	4,066,584	14,222,923
1930	3,601,305	121,602	53,600	5,842,763	4,767,120	14,386,390
1931	2,207,686	128,769	36,000	3,924,692	3,485,287	9,782,434
1932	2,632,154	79,219	33,000	5,125,399	1,857,065	9,726,837
1933	3,195,294	111,098	33,500	10,708,448	935,582	14,983,922
1934	3,741,604	116,967	38,000	18,910,687	2,492,230	25,299,488
1935	3,853,243	110,960	1,144,374	20,695,423	2,644,214	28,448,214
1936	3,823,137	304,975	552,497	24,511,950	2,802,678	31,995,237
1937	5,588,038	942,548	689,159	14,823,508	3,942,576	25,985,829
1938	4,587,513	1,231,144	718,830	16,065.029	4,023,798	26,626,314
1939	4,837,298	830,480	833,300	18,980.527	2,068,779	27,550,384
1940	2,142,674	180,830	114,717	13,214,990	3,388,442	19,041,653
1941	2,894,248	552,491	398,235	17,677,198	3,304,657	24,290,751
1942	892,518	144,691	33,214	12,686,640	2,255,908	16,012,971
1943	1,644,142	586,102	58,000	14,016,179	3,738,818	20,043,241
1944	2,355,010	65,460	50,000	18,271,859	3,548,422	24,290.751
1945	2,835,173	221,218	26,000	12,062,111	2,875,323	18,019,825
1946	3,544,907	341,423	133,727	4,902,625	1,431,600	10,354,282
1947	3,779,675	200,801	246,184	2,633,604	1,778,327	8,415,449
1948	3,501,631	210,923	114,928	2,833,197	3,427,273	10,087,952
1949	668,086	207,000	26,700	6,712,795	3,618,654	11,233,235

the $115 per ton unofficially reported at the end of the 1947-48 season.

The price was $11 per ton from 1926 through 1929. It dropped to $8 in 1930 and 1931, only to go as low as $4 per ton in 1932, rising to $7 in 1933.

The following year saw sardines at $7.50 per ton, rising to $8 in 1935, and $10 in 1936. The price took a jump in 1937 to $13 yielding $2 of that advance in 1938.

During the 1940-41 season the price was $10.35 per ton, and in 1941 it rose to $17 per ton. The price in the succeeding season was set by the OPA at $22 per ton, and stayed there through the 1945-46 season.

When the 1948-49 season ended fishermen were getting $50 per ton for their fish.

October-November Fishing Good

Up to the November, 1949, full moon period more fish had been caught in the first three months of the season than in the past three years combined.

A breakdown of the official catch figures shows totals for the past three seasons at Monterey: 1946-47—26,787 tons; 1947-48—9,538 tons; 1948-49—34,943 tons for a total for the three seasons of 71,259 tons as compared to the 97,609 tons landed in Monterey in the 1949-50 season up to the November full moon.

Bad weather in October curtailed fishing operations out of San Francisco but as the November dark opened there were 17 purse seiners fishing out of the Golden Gate, and 13 reduction plants and canneries were running on the bay.

As the December light of moon ended Dec. 8, northern California sardine fishermen were hoping for a winter run of sardines, which in normal times provides about 20 days of fishing in Monterey Bay, and north.

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A notable 1949 addition to the cannery tender fleet—70′ steel *Jaguar* of Kadiak Fisheries Co., propelled by a 500-hp. General Motors diesel. The vessel was built by Long Marine Construction Co.

November's total 19,437 tons of sardines was the lowest monthly catch at Monterey since August. During most of the month seiners made their sets off San Luis Obispo and spent 10 and 12 hours on the trip home to Monterey.

As of the middle of December, 1949, the season's total at Monterey had reached 117,704 tons, and at San Francisco was more than 14,000 tons. This was the largest catch since the winter of 1945. Fishing was due to continue until Jan. 15.

December Fishing Disappoints

Fishing was unsatisfactory in Monterey Bay during December because of a large number of anchovies mixed with the sardines. Best catch of the month of November was on the 16th when 3,095 tons were landed.

Horace Mercurio, veteran purse seine skipper, and manager of the Monterey Purse Seine Association, boat owner's group, felt that if limits had not been imposed on the Monterey fleet, twice as many fish would have been landed there during the 1949-50 season.

He pointed out that the season didn't start until 20 days after it was supposed to have, and that boats were then on 20 ton limits. Limits ranged all through the season from 20 to 100 tons per boat.

Mr. Mercurio said that during the first three months of the season, fishermen were giving away fish to other boats, to give them the limit, also.

"There was no waste of fish," said Mr. Mercurio. "The sardines were back. They were plentiful, and the feed is back. They are not two year fish, but range all the way from three to six years of age, being from 9 to 14″ long. Also the fishermen don't catch the same size fish all the time—some fish are fatter than others."

During the season the Monterey Purse Seiners Association and the AFL Seine & Line Fishermen's Union cooperated in the employment of seven inspectors to check the canners' weighing apparatus and flumes to see that they were in good shape.

Disasters at sea laid a comparatively light hand on the northern California sardine fleet during the year.

The $100,000 purse seiner *Petrina F.*, skippered by Frank Flores, and fishing off Morro Bay, out of Monterey, capsized in December, but her crew was saved.

During the same month the purse seiner *King Phillip,* A. Girolamo, Monterey, managing partner, was blown upon the beach, and badly damaged. She was towed to San Francisco for repairs.

Death took its toll among the leaders of the California sardine fishery during the year. In May E. M. Darrimon, president of Red Rock Fisheries, Pt. San Pablo; former vice-president of Parrott & Co., president of the San Diego Packing Co., and head of E. M. Darrimon & Co., Los Angeles canned food brokerage house, died suddenly.

In February the Pacific Coast fish industry was shocked to learn of the death of Angelo Lucido, 53, president and one of the founders of the San Carlos Canning Co., Monterey, one of the world's largest fish canneries.

Frank Leard, managing partner in the Peninsula Packing Co., and the Custom House Packing Co., Monterey, accepted an executive position with Wilbur-Ellis Co., San Francisco.

His duties at Monterey were taken over by Bernard T. "Barney" Kitchens, formerly of the canned goods department of Wilbur-Ellis, and well known in the canned fish business.

Wilbur-Ellis Co., San Francisco, purchased the Moss Landing sardine reduction plant, Thomas Fisheries, and the operation is now known as Wilbur-Ellis, Moss Landing.

The Ace Packing Co., Moss Landing, was taken over by Joe Olivieri, for many years manager for A. Paladini Inc., in the Monterey area, and a group of Santa Cruz fishermen, and was reorganized as the Santa Cruz Canning Co. Mr. Olivieri continues in his duties for Paladini.

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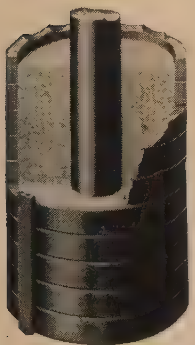

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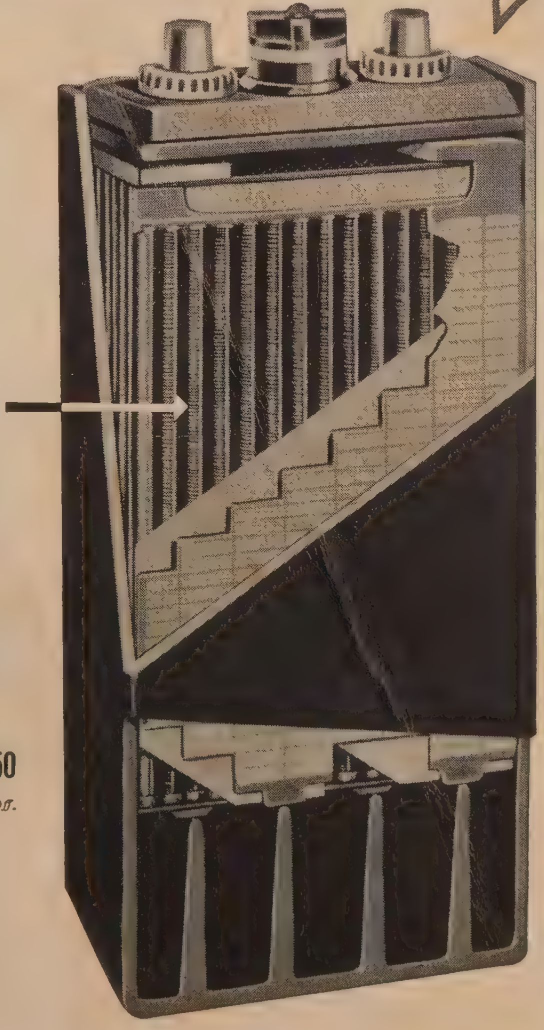

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